

April 3, 2003

State of Utah  
Division of Oil, Gas & Mining  
Attn: Diana Mason  
1594 West North Temple - Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

RE: Applications for Permit to Drill: Sundance Federal 9-31-8-18, 10-31-8-18,  
and 14-31-8-18.

Dear Diana:

Enclosed find APD's on the above referenced wells. If you have any questions, feel free to give either Brad or myself a call.

Sincerely,

Mandie Crozier  
Regulatory Specialist

mc  
enclosures

001

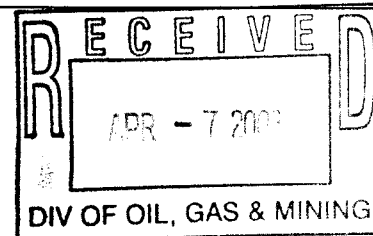
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. UTU-74404	
1b. TYPE OF WELL OIL <input type="checkbox"/> GAS <input type="checkbox"/> SINGLE <input type="checkbox"/> MULTIPLE <input type="checkbox"/> WELL <input checked="" type="checkbox"/> WELL <input type="checkbox"/> OTHER <input type="checkbox"/> ZONE <input checked="" type="checkbox"/> ZONE <input type="checkbox"/>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A	
2. NAME OF OPERATOR Inland Production Company		7. UNIT AGREEMENT NAME N/A	
3. ADDRESS OF OPERATOR Route #3 Box 3630, Myton, UT 84052 Phone: (435) 646-3721		8. FARM OR LEASE NAME WELL NO Sundance Federal #9-31-8-18	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)* At Surface NE/SE 2142' FSL 744' FEL 4436209Y 40.07309 At proposed Prod. Zone 591349X -109.92873		9. API WELL NO. 43-047-34931	
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA NE/SE Sec. 31, T8S, R18E		10. FIELD AND POOL OR WILDCAT Eight Mile Flat North	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* Approximately 21.1 miles southeast of Myton, Utah		12. County Uintah	
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to Approx. 498' f/lse line		13. STATE UT	
16. NO. OF ACRES IN LEASE 277.52		17. NO. OF ACRES ASSIGNED TO THIS WELL 40	
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT. Approx. 1256'		20. ROTARY OR CABLE TOOLS Rotary	
19. PROPOSED DEPTH 6500'		22. APPROX. DATE WORK WILL START* 3 rd Quarter 2003	
21. ELEVATIONS (Show whether DF, RT, GR, etc.) 4979' GR			
23. PROPOSED CASING AND CEMENTING PROGRAM			
SIZE OF HOLE	SIZE OF CASING	WEIGHT/FOOT	SETTING DEPTH
QUANTITY OF CEMENT			
Refer to Monument Butte Field SOP's Drilling Program/Casing Design			

Inland Production Company proposes to drill this well in accordance with the attached exhibits.

The Conditions of Approval are also attached.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM : If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone.  
If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.24. SIGNED Therese Coxen TITLE Regulatory Specialist DATE 4/13/03

(This space for Federal or State office use)

PERMIT NO. 43-047-34931 APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to the land on which the proposed well is to be drilled, or that the applicant has a valid lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY Bradley G. Hill TITLE BRADLEY G. HILL DATE 04-08-03  
ENVIRONMENTAL SCIENTIST III

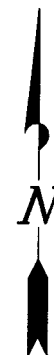
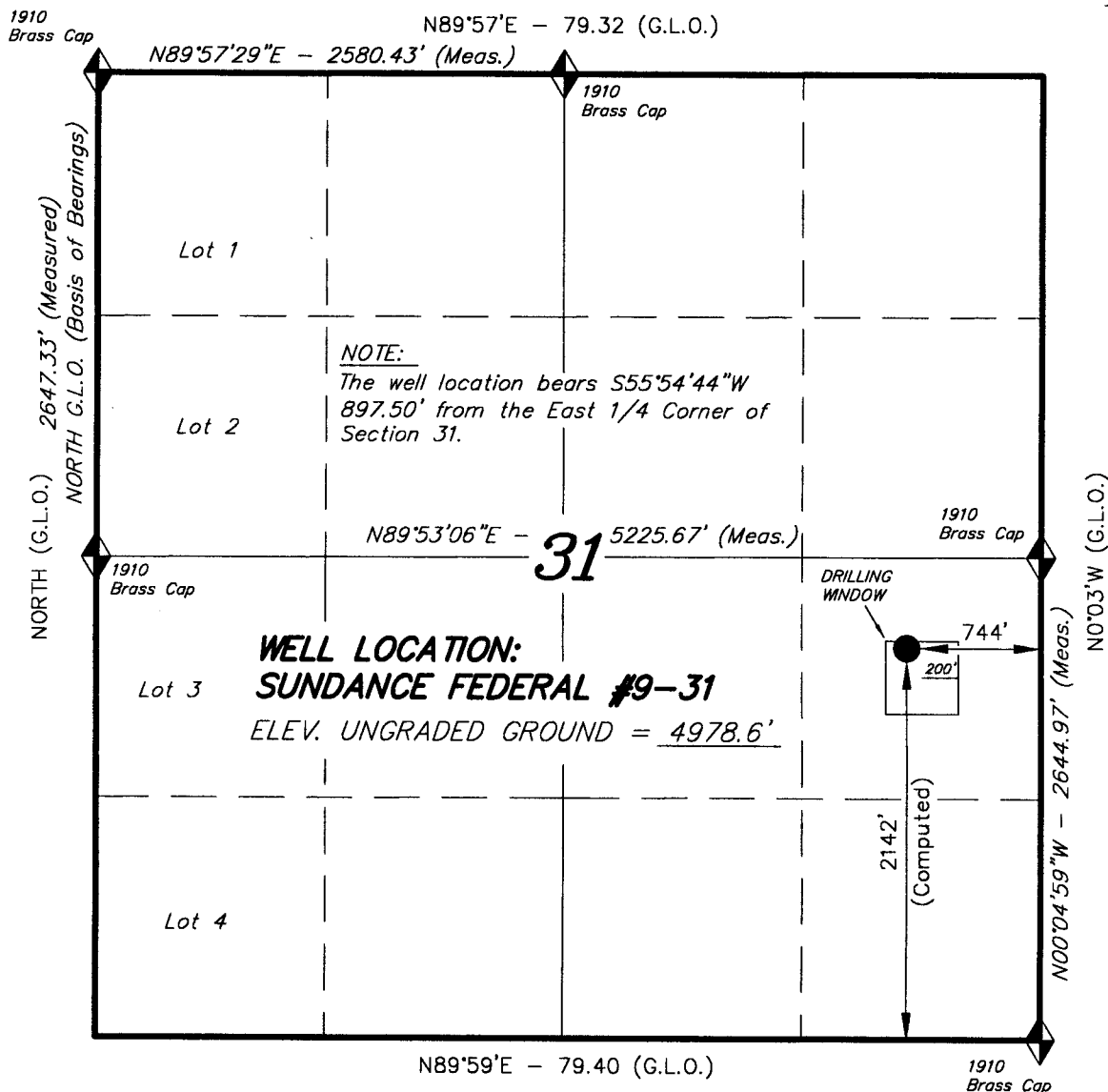
\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

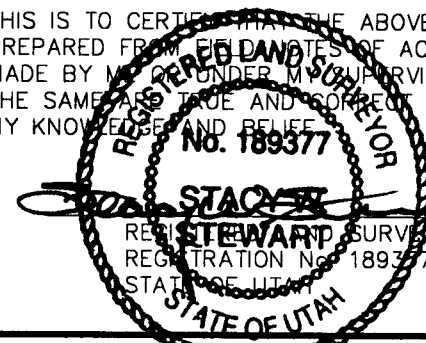
**T8S, R18E, S.L.B.&M.**

**INLAND PRODUCTION COMPANY**

WELL LOCATION, SUNDANCE FEDERAL #9-31, LOCATED AS SHOWN IN THE NE 1/4 SE 1/4 OF SECTION 31, T8S, R18E, S.L.B.&M. UTAH COUNTY, UTAH.



THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



**TRI STATE LAND SURVEYING & CONSULTING**  
38 WEST 100 NORTH - VERNAL, UTAH 84078  
(435) 781-2501

SCALE: 1" = 1000'	SURVEYED BY: D.J.S.
DATE: 12-30-01	DRAWN BY: J.R.S.
NOTES:	FILE #

◆ = SECTION CORNERS LOCATED

BASIS OF ELEV; U.S.G.S. 7-1/2 min QUAD (PARIETTE DRAW SW)

INLAND PRODUCTION COMPANY  
SUNDANCE FEDERAL #9-31-8-18  
NE/SE SECTION 31, T8S, R18E  
UINTAH COUNTY, UTAH

ONSHORE ORDER NO. 1

**DRILLING PROGRAM**

1. **GEOLOGIC SURFACE FORMATION:**

Uinta formation of Upper Eocene Age

2. **ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS:**

Uinta	0' – 1640'
Green River	1640'
Wasatch	6500'

3. **ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS OR MINERALS:**

Green River Formation 1640' – 6500' - Oil

4. **PROPOSED CASING PROGRAM**

Please refer to the Monument Butte Field Standard Operation Procedure (SOP).

5. **MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:**

Please refer to the Monument Butte Field SOP. See Exhibit "C".

6. **TYPE AND CHARACTERISTICS OF THE PROPOSED CIRCULATION MUDS:**

Please refer to the Monument Butte Field SOP.

7. **AUXILIARY SAFETY EQUIPMENT TO BE USED:**

Please refer to the Monument Butte Field SOP.

8. **TESTING, LOGGING AND CORING PROGRAMS:**

Please refer to the Monument Butte Field SOP.

9. **ANTICIPATED ABNORMAL PRESSURE OR TEMPERATURE:**

The anticipated maximum bottom hole pressure is 2000 psi. It is not anticipated that abnormal temperatures will be encountered.

10. **ANTICIPATED STARTING DATE AND DURATION OF THE OPERATIONS:**

Please refer to the Monument Butte Field SOP.

INLAND PRODUCTION COMPANY  
SUNDANCE FEDERAL #9-31-8-18  
NE/SE SECTION 31, T8S, R18E  
UINTAH COUNTY, UTAH

ONSHORE ORDER NO. 1

**MULTI-POINT SURFACE USE & OPERATIONS PLAN**

1. **EXISTING ROADS**

See attached Topographic Map "A"

To reach Inland Production Company well location site Sundance Federal #9-31-8-18 located in the NE 1/4 SE 1/4 Section 31, T8S, R18E, Uintah County, Utah:

Proceed southwesterly out of Myton, Utah along Highway 40 - 1.6 miles  $\pm$  to the junction of this highway and UT State Hwy 53; proceed southeasterly along Hwy 53 - 13.8 miles  $\pm$  to it's junction with an existing road to the north; proceed northerly - 0.3 miles  $\pm$  to it's junction with an existing road to the northeast; proceed northeasterly - 5.4 miles  $\pm$  to it's junction with the beginning of the proposed access road to the proposed well location.

2. **PLANNED ACCESS ROAD**

See Topographic Map "B" for the location of the proposed access road.

3. **LOCATION OF EXISTING WELLS**

Refer to Exhibit "B".

4. **LOCATION OF EXISTING AND/OR PROPOSED FACILITIES**

Please refer to the Monument Butte Field Standard Operating Procedure (SOP).

5. **LOCATION AND TYPE OF WATER SUPPLY**

Please refer to the Monument Butte Field SOP. See Exhibit "A".

6. **SOURCE OF CONSTRUCTION MATERIALS**

Please refer to the Monument Butte Field SOP.

7. **METHODS FOR HANDLING WASTE DISPOSAL**

Please refer to the Monument Butte Field SOP.

8. **ANCILLARY FACILITIES**

Please refer to the Monument Butte Field SOP.

9. **WELL SITE LAYOUT**

The attached Location Layout Diagram describes drill pad cross-sections, cuts and fills, and locations of the mud tanks, reserve pit, pipe racks, trailer parking, spoil dirt stockpile(s), and surface material stockpile(s).

10. PLANS FOR RESTORATION OF SURFACE

Please refer to the Monument Butte Field SOP.

11. SURFACE OWNERSHIP - Bureau Of Land Management

12. OTHER ADDITIONAL INFORMATION

Archaeological Resource Survey for this area is attached.

The Paleontological Resource Survey will be forthcoming.

Inland Production Company requests a 60' ROW for the Sundance Federal #9-31-8-18 to allow for construction of a 6" gas gathering line, and a 3" poly fuel gas line. Both lines will tie in to the existing pipeline infrastructure. **Refer to Topographic Map "C."**

Inland Production Company also requests a 60' ROW be granted for the Sundance Federal #9-31-8-18 to allow for construction of a 3" steel water injection line and a 3" poly water return line. **Refer to Topographic Map "C."**

**Water Disposal**

Formation water is produced to a steel storage tank. If the production water meets quality guidelines, it is transported to the Ashley, Monument Butte, Jonah, and Beluga water injection facilities by company or contract trucks. Subsequently, the produced water is injected into approved Class II wells to enhance Inland's secondary recovery project.

Water not meeting quality criteria, is disposed at Inland's Pariette #4 disposal well (Sec. 7, T9S R19E) or at State of Utah approved surface disposal facilities.

13. LESSEE'S OR OPERATORS REPRESENTATIVE AND CERTIFICATION

Representative

Name: Brad Mecham  
Address: Route #3 Box 3630  
Myton, UT 84052  
Telephone: (435) 646-3721

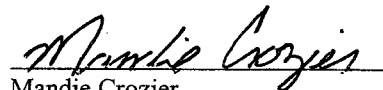
Certification

Please be advised that INLAND PRODUCTION COMPANY is considered to be the operator of well #9-31-8-18 NE/SE Section 31, Township 8S, Range 18E: Lease UTU-74404 Uintah County, Utah: and is responsible under the terms and conditions of the lease for the operations conducted upon the leased lands. Bond coverage is provided by Hartford Accident #4488944.

I hereby certify that the proposed drillsite and access route have been inspected, and I am familiar with the conditions which currently exist; that the statements made in this plan are true and correct to the best of my knowledge; and that the work associated with the operations proposed here will be performed by Inland Production Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

4/3/03

Date

  
Mandie Crozier  
Regulatory Specialist

Well No.: Sundance Federal 9-31-8-18

CONDITIONS OF APPROVAL  
APPLICATION FOR PERMIT TO DRILL

Company/Operator: Inland Production Company

Well Name & Number: Sundance Federal 9-31-8-18

API Number:

Lease Number: UTU-74404

Location: NE/SE Sec. 31, T8S R18E

**SURFACE USE PROGRAM**  
**CONDITIONS OF APPROVAL**

**CULTURAL RESOURCES**

See *DIAMOND MOUNTAIN RESOURCE AREA RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION* (Fall 1994).

**PALEONTOLOGICAL RESOURCES**

See *DIAMOND MOUNTAIN RESOURCE AREA RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION* (Fall 1994).

**SOILS, WATERSHEDS, AND FLOODPLAINS**

See *DIAMOND MOUNTAIN RESOURCE AREA RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION* (Fall 1994).

**WILDLIFE AND FISHERIES**

See *DIAMOND MOUNTAIN RESOURCE AREA RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION* (Fall 1994).

**THREATENED, ENDANGERED, AND OTHER SENSITIVE SPECIES**

**FERRUGINOUS HAWK:** Due to this proposed well location's proximity (less than 0.5 mile) to an existing inactive ferruginous hawk nest site, no new construction or surface disturbing activities will be allowed between February 1 and May 30. If the nest remains inactive on May 30<sup>th</sup> (based on a pre-construction survey by a qualified biologist), the operator may construct and drill the location after that date. If the nest site becomes active prior to May 30, no new construction or surface disturbing activities will be allowed within 0.5 mile of the nest until the nest becomes inactive for two full breeding seasons. In the event that this well becomes a producing well, it must be equipped with a multi-cylinder engine or hospital muffler to reduce noise levels.

**LOCATION AND RESERVE PIT RECLAMATION**

During construction of the reserve pit, a small amount of topsoil shall be stockpiled nearby, to be spread over the reserve pit area at the time the reserve pit is reclaimed.

The topsoil stockpile shall be reseeded immediately after site construction by broadcasting the seed, then walking the topsoil stockpile with the dozer to plant the seed.

The following seed mixture will be used on the topsoil stockpile, the recontoured surface of the reserve pit, and for final reclamation: (All poundages are in pure live seed)

Gardner saltbush	<i>Atriplex gardneri</i>	4 lbs/acre
Galletta grass	<i>Hilaria jamesii</i>	4 lbs/acre
Indian ricegrass	<i>Oryzopsis hymenoides</i>	4 lbs/acre

The reserve pit shall be reclaimed immediately after drilling operations have ceased. The pit shall be reclaimed by: 1) removing all liquids and any oily debris according to Utah Division of Oil, Gas, & Mining pit closure rules; 2) perforating and folding the liner in place (if a pit liner is used); 3) recontouring the surface; 4) broadcasting the seed over the recontoured surface; and 5) walking the surface of the pit with a dozer to plant the seed.

At the time of final abandonment, the location and access will be recontoured to natural topography and topsoil spread over the area and the surface seeded immediately.

#### **PIPELINES**

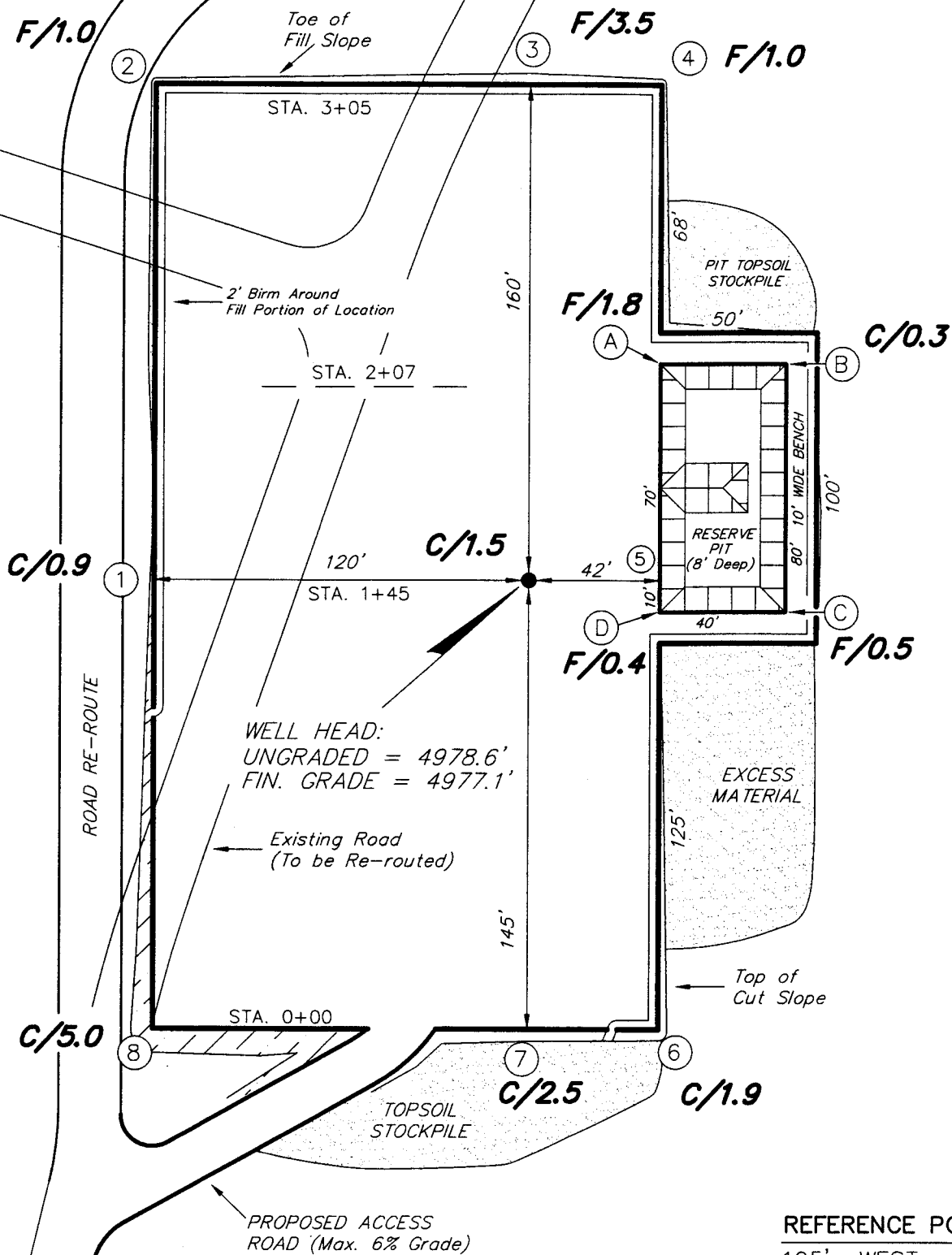
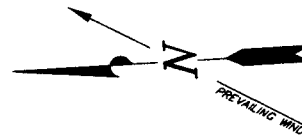
Installation of a surface gas pipeline and/or any subsequent buried gas or water pipelines will follow the conditions of approval outlined above.

Except as specified in the APD, the installation of the surface gas line and any subsequent buried pipelines will follow the edge of the existing roadways without interfering with the normal travel and maintenance of the roadway.

The installation of any buried pipelines will disturb as little surface as possible and will not exceed 60 feet in width. Reclamation of the disturbance area associated with buried pipelines will be completed within 10 days after installation. The surface will be recontoured to natural or near natural contours. Reseeding will be with the same seed mixture specified for reclamation of the reserve pit and well site. The interface of the buried line disturbance area and the edge of any adjacent access roads will be constructed with a borrow ditch and road berm to minimize vehicular travel along the water line route.

# INLAND PRODUCTION COMPANY

SUNDANCE FEDERAL #9-31  
SEC. 31, T8S, R18E, S.L.B.&M.



## REFERENCE POINTS

195' WEST = 4980.5'  
240' WEST = 4986.2'

SURVEYED BY: D.J.S.

SCALE: 1" = 50'

DRAWN BY: J.R.S.

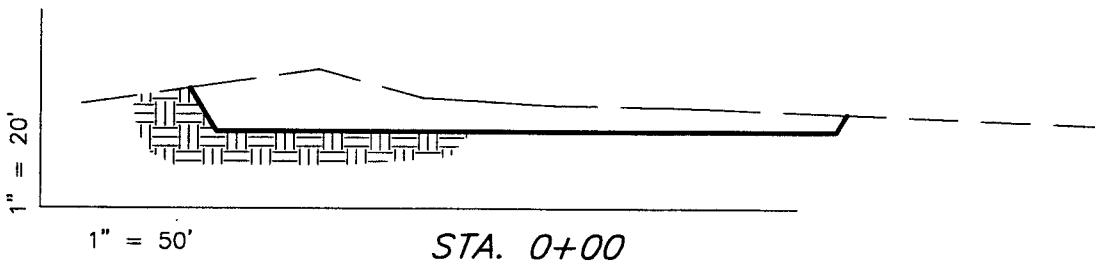
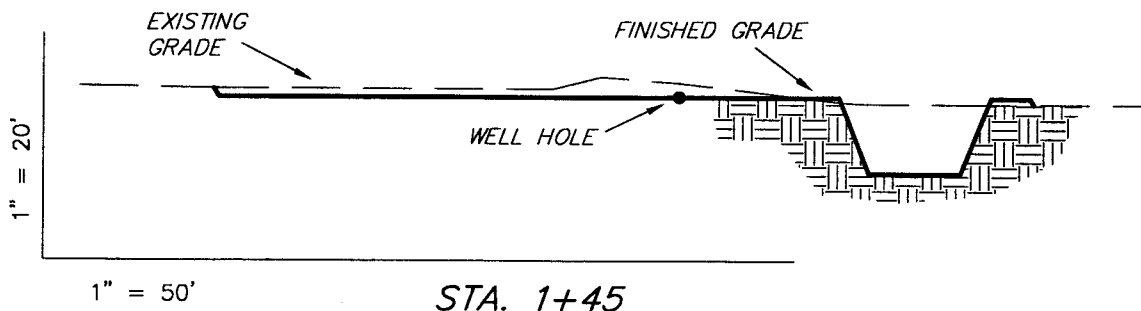
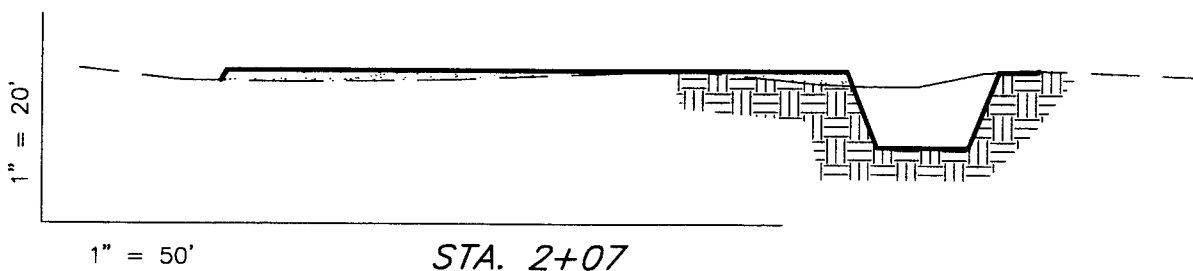
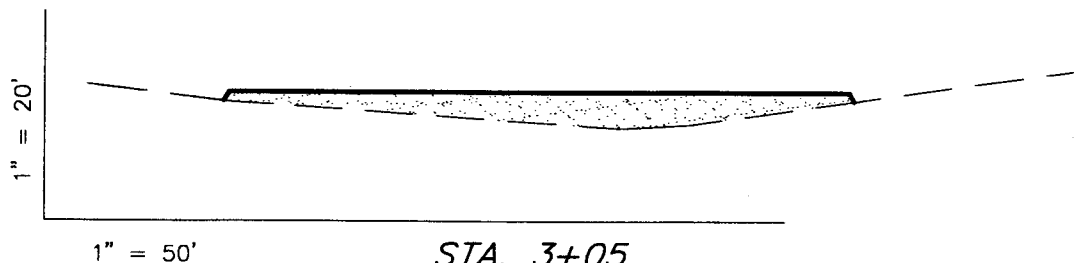
DATE: 12-30-01

**Tri State**  
Land Surveying, Inc.

38 WEST 100 NORTH VERNAL, UTAH 84078

(435) 781-2501

**INLAND PRODUCTION COMPANY**  
**CROSS SECTIONS**  
**SUNDANCE FEDERAL #9-31**



NOTE:  
 UNLESS OTHERWISE NOTED  
 ALL CUT/FILL SLOPES ARE  
 AT 1.5:1.

**ESTIMATED EARTHWORK QUANTITIES**  
 (Expressed in Cubic Yards)

ITEM	CUT	FILL	TOPSOIL	EXCESS
PAD	1,760	1,760	Topsoil is not included in Pad Cut	0
PIT	640	0		640
TOTALS	2,400	1,760	1,010	640

SURVEYED BY: D.J.S.

SCALE: 1" = 50'

DRAWN BY: J.R.S.

DATE: 12-30-01

**Tri State**  
 Land Surveying, Inc.

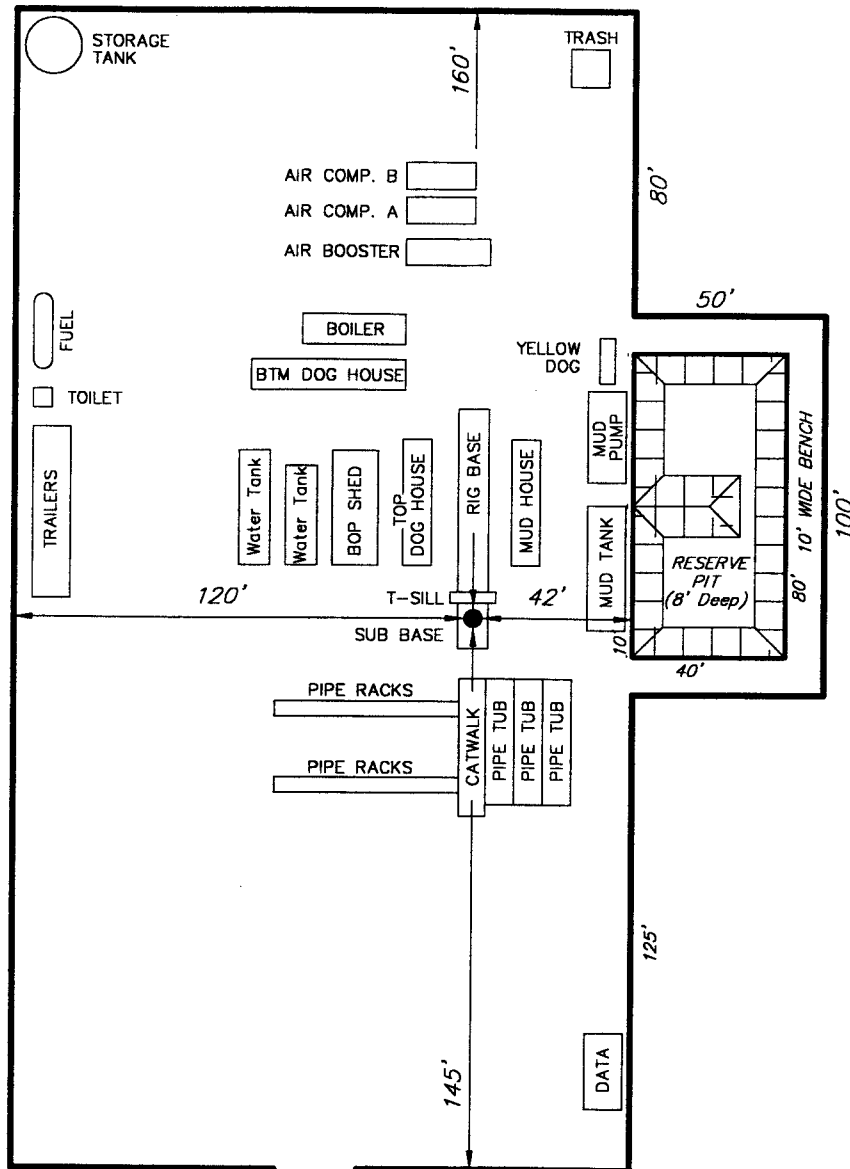
(435) 781-2501

38 WEST 100 NORTH VERNAL, UTAH 84078

# INLAND PRODUCTION COMPANY

## TYPICAL RIG LAYOUT

### SUNDANCE FEDERAL #9-31



PROPOSED ACCESS  
ROAD (Max. 6% Grade)

SURVEYED BY: D.J.S.

SCALE: 1" = 50'

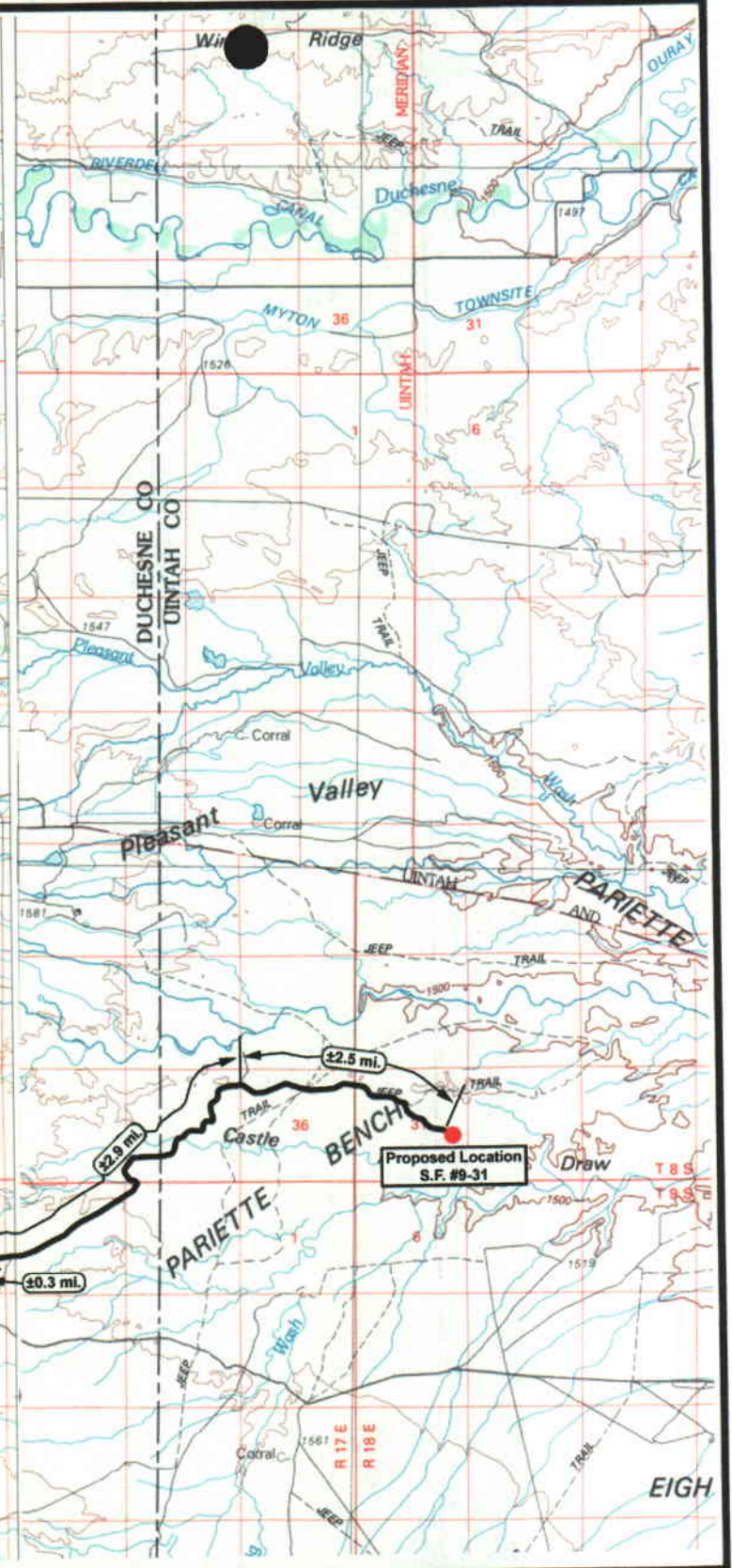
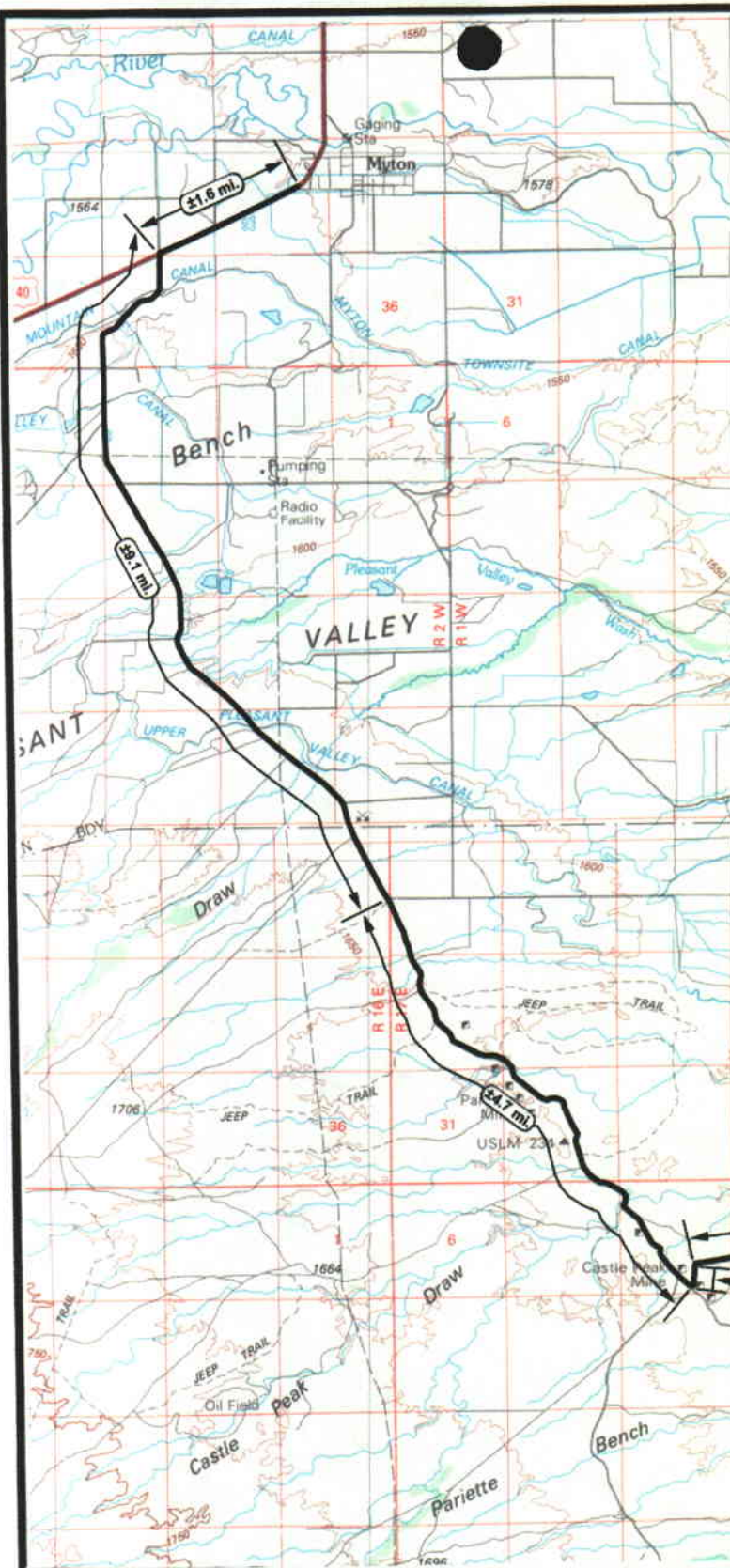
DRAWN BY: J.R.S.

DATE: 12-30-01

**Tri State**  
Land Surveying, Inc.

(435) 781-2501

38 WEST 100 NORTH VERNAL, UTAH 84078



**Sundance Federal #9-31  
SEC. 31, T8S, R18E, S.L.B.&M.**



**Tri-State  
Land Surveying Inc.**  
(435) 781-2501  
38 West 100 North Vernal, Utah 84078

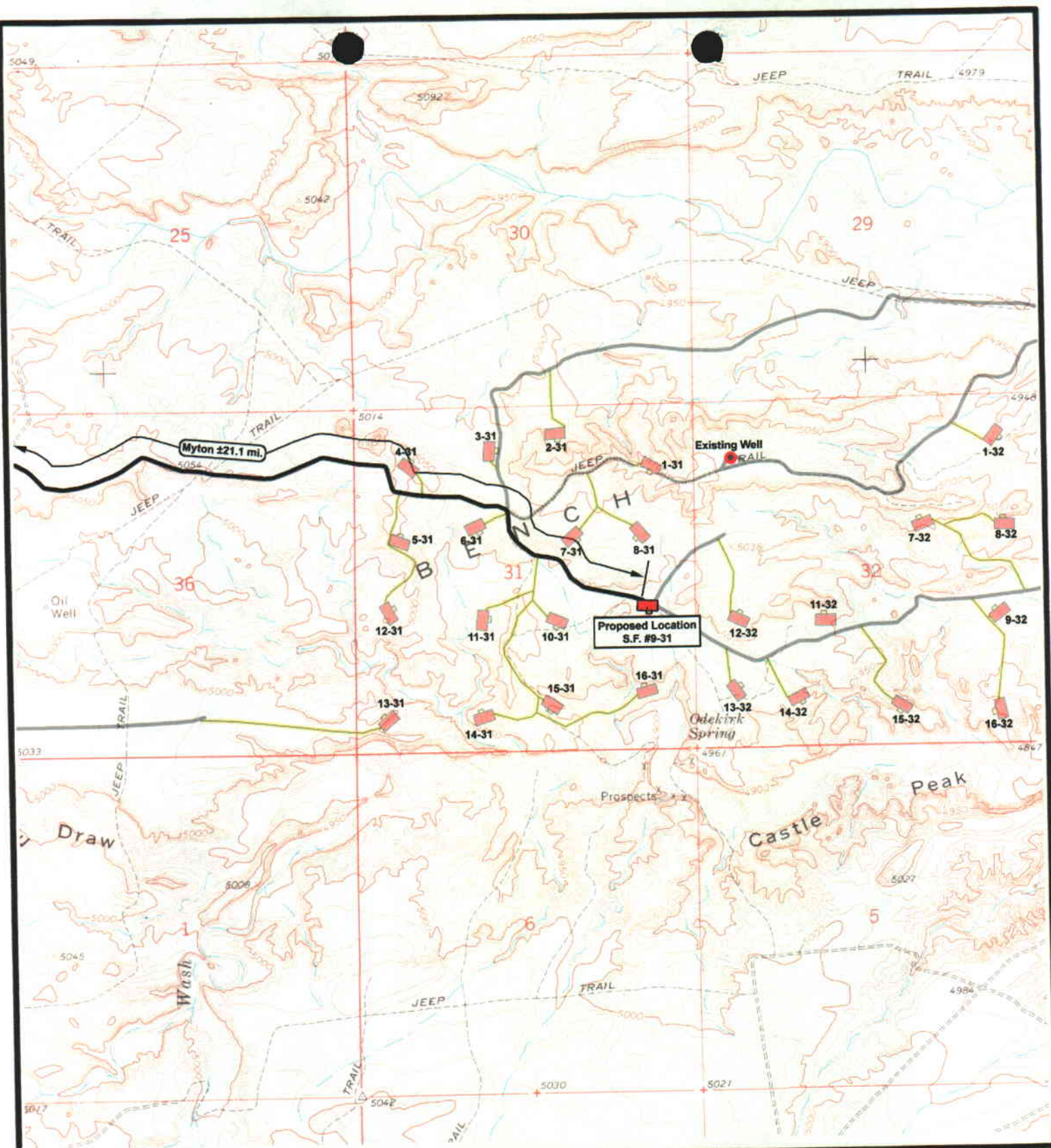
SCALE: 1" = 100,000'  
DRAWN BY: D.J.  
DATE: 01-02-2002

### Legend

— Existing Road  
— Proposed Access

TOPOGRAPHIC MAP

**"A"**



**Sundance Federal #9-31  
SEC. 31, T8S, R18E S.L.B.&M.**



**Tri-State  
Land Surveying Inc.**  
(435) 781-2501  
38 West 100 North Vernal, Utah 84078

SCALE: 1" = 2000'  
DRAWN BY: D.J.  
DATE: 01-02-2002

### Legend

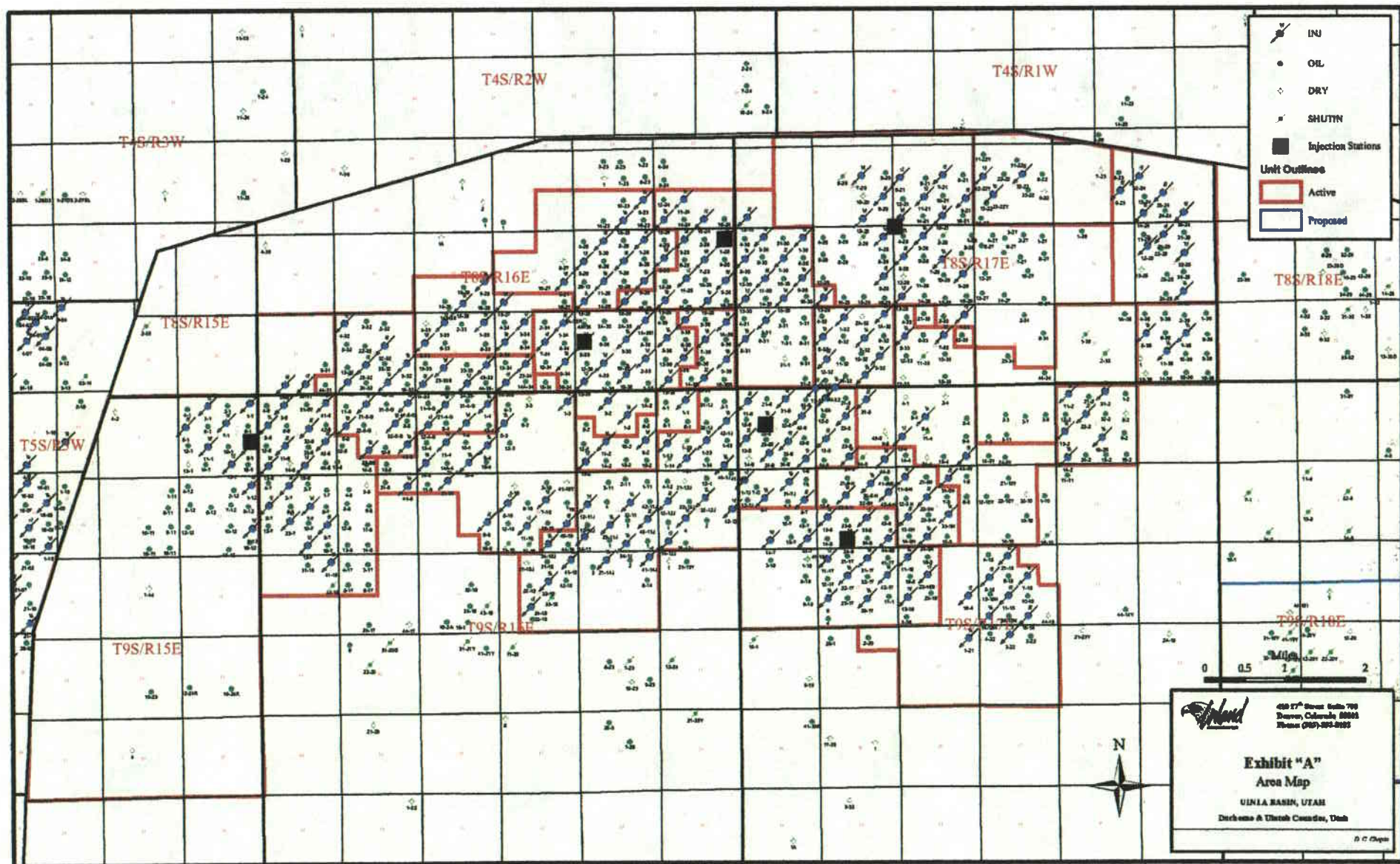
- Existing Road
- Proposed Access
- Access to be Upgraded

TOPOGRAPHIC MAP

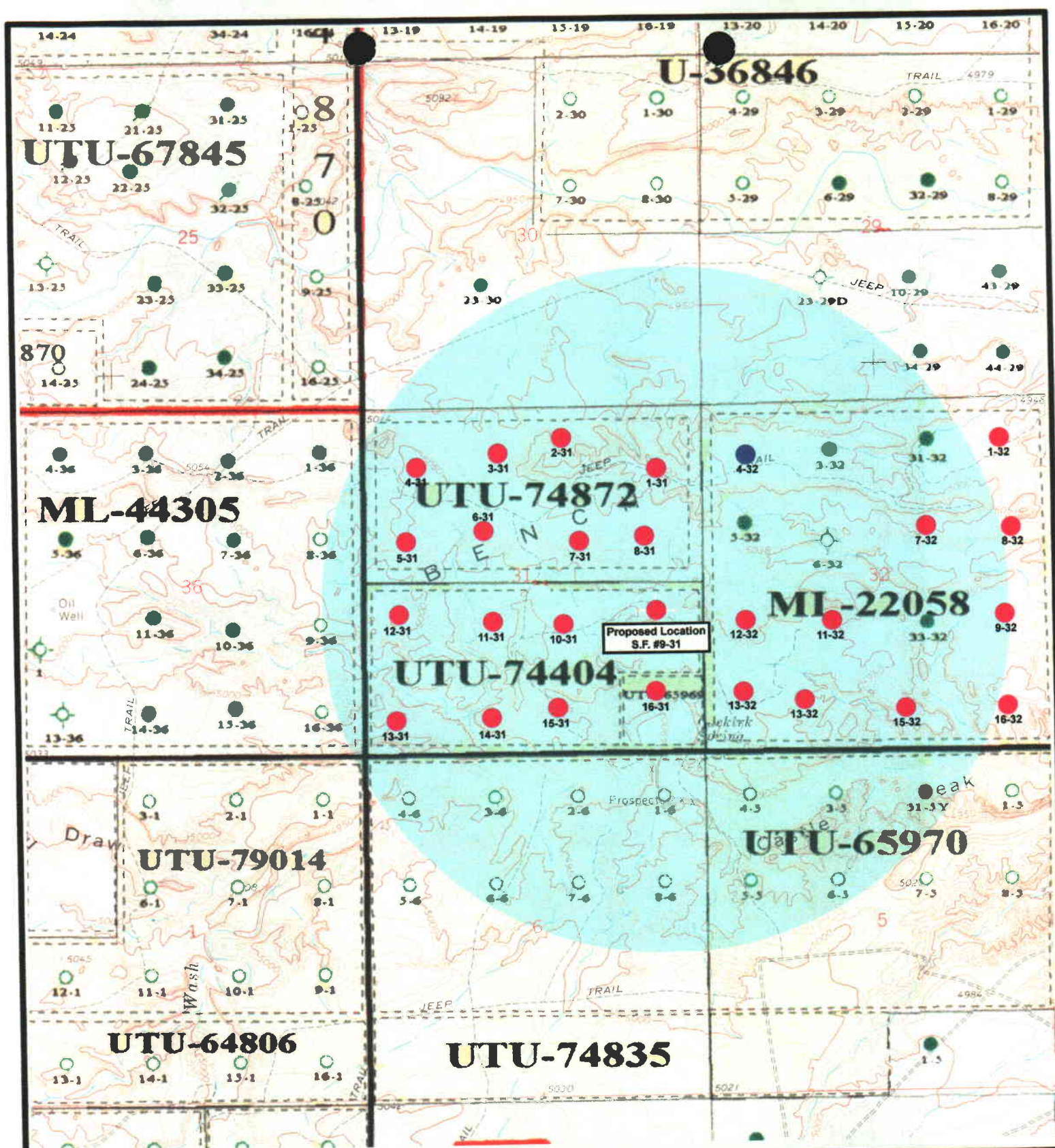
**"B"**







January 15, 2003



**Sundance Federal #9-31  
SEC. 31, T8S. R18E, S.L.B.&M.**



**Tri-State  
Land Surveying Inc.**  
(435) 781-2501  
38 West 100 North Vernal, Utah 84078

SCALE: 1" = 2000'  
DRAWN BY: D.J.  
DATE: 01-02-2002

**Legend**

- Existing Wells
- Proposed Locations
- One Mile Radius

**Exhibit  
"B"**

# 2-M SYSTEM

Blowout Prevention Equipment Systems

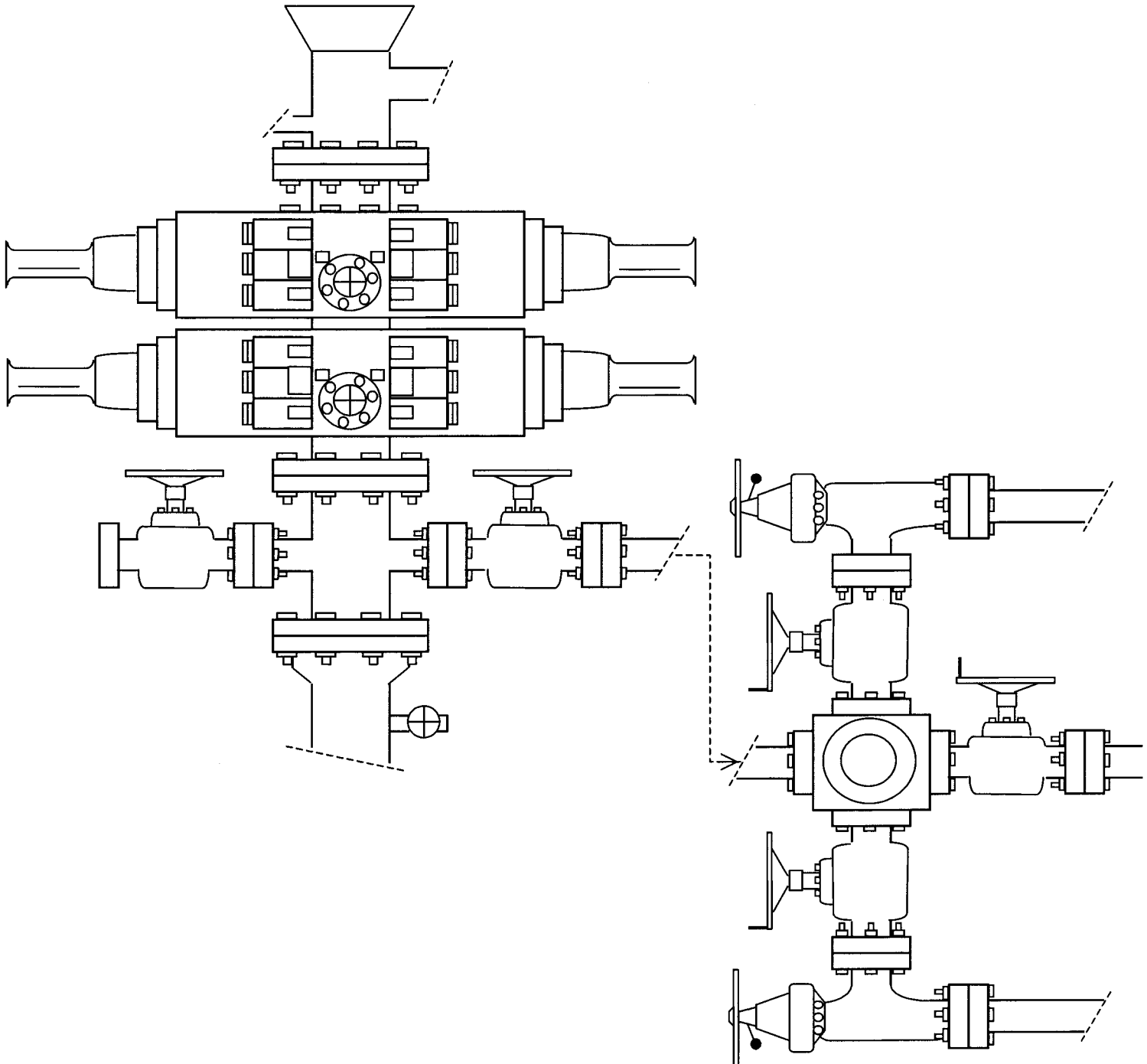


EXHIBIT C

003

WORKSHEET  
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 04/07/2003

API NO. ASSIGNED: 43-047-34931

WELL NAME: SUNDANCE FED 9-31-8-18

OPERATOR: INLAND PRODUCTION ( N5160 )

CONTACT: MANDIE CROZIER

PHONE NUMBER: 435-646-3721

## PROPOSED LOCATION:

NESE 31 080S 180E

SURFACE: 2142 FSL 0744 FEL

BOTTOM: 2142 FSL 0744 FEL

UINTAH

8 MILE FLAT NORTH ( 590 )

LEASE TYPE: 1 - Federal

LEASE NUMBER: UTU-74404

SURFACE OWNER: 1 - Federal

PROPOSED FORMATION: GRRV

INSPECT LOCATN BY: / /

Tech Review	Initials	Date
Engineering		
Geology		
Surface		

LATITUDE: 40.07309

LONGITUDE: 109.92873

## RECEIVED AND/OR REVIEWED:

☒ Plat  
☒ Bond: Fed[1] Ind[] Sta[] Fee[]  
(No. 4488944 )  
☒ Potash (Y/N)  
☒ Oil Shale 190-5 (B) or 190-3 or 190-13  
☒ Water Permit  
(No. Municipal )  
☒ RDCC Review (Y/N)  
(Date: \_\_\_\_\_ )  
☒ Fee Surf Agreement (Y/N)

## LOCATION AND SITING:

R649-2-3.

Unit \_\_\_\_\_

☒ R649-3-2. General  
Siting: 460 From Qtr/Qtr & 920' Between Wells

R649-3-3. Exception

Drilling Unit

Board Cause No: \_\_\_\_\_

Eff Date: \_\_\_\_\_

Siting: \_\_\_\_\_

R649-3-11. Directional Drill

COMMENTS: See Separate fileSTIPULATIONS: 1- Federal Approval2- Spacing Strip





# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

(801) 538-5340 telephone

(801) 359-3940 fax

(801) 538-7223 TTY

[www.nr.utah.gov](http://www.nr.utah.gov)

Michael O. Leavitt  
Governor

Robert L. Morgan  
Executive Director

Lowell P. Braxton  
Division Director

April 8, 2003

Inland Production Company  
Route #3, Box 3630  
Myton, UT 84052

Re: Sundance Federal 9-31-8-18 Well, 2142' FSL, 744' FEL, NE SE, Sec. 31, T. 8 South,  
R. 18 East, Uintah County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-047-34931.

Sincerely,

A handwritten signature in black ink, appearing to read 'J.R. Baza'.

John R. Baza  
Associate Director

pab  
Enclosures

cc: Uintah County Assessor  
Bureau of Land Management, Vernal District Office

**Operator:** Inland Production Company  
**Well Name & Number** Sundance Federal 9-31-8-18  
**API Number:** 43-047-34931  
**Lease:** UTU-74404

**Location:** NE SE      **Sec.** 31      **T.** 8 South      **R.** 18 East

### **Conditions of Approval**

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division within 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284.

Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dan Jarvis at (801) 538-5338

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supersede the required federal approval, which must be obtained prior to drilling.

5. This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

005

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK **DRILL** ☒ **DEEPEN** ☐

1b. TYPE OF WELL

OIL WELL ☒ GAS WELL ☐ SINGLE ZONE ☐ MULTIPLE ZONE ☒

2. NAME OF OPERATOR

**Inland Production Company**

3. ADDRESS OF OPERATOR

**Route #3 Box 3630, Myton, UT 84052**

Phone: (435) 646-3721

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. \*)

At Surface **NE/SE 2142' FSL 744' FEL**

At proposed Prod. Zone

5. LEASE DESIGNATION AND SERIAL NO.

**UTU-74404**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

**N/A**

7. UNIT AGREEMENT NAME

**N/A**

8. FARM OR LEASE NAME WELL NO

**Federal #9-31-8-18**

9. API WELL NO.

**43-047-34931**

10. FIELD AND POOL OR WILDCAT

**Eight Mile Flat North**

11. SEC., T., R., M., OR BLK.

AND SURVEY OR AREA

**NE/SE**

**Sec. 31, T8S, R18E**

12. County

**Uintah**

13. STATE

**UT**

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

**Approximately 21.1 miles southeast of Myton, Utah**

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to

**Approx. 498' f/lease line**

16. NO. OF ACRES IN LEASE

**277.52**

17. NO. OF ACRES ASSIGNED TO THIS WELL

**40**

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT.

**Approx. 1256'**

19. PROPOSED DEPTH

**6500'**

20. ROTARY OR CABLE TOOLS

**Rotary**

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

**4979' GR**

22. APPROX. DATE WORK WILL START\*

**3 rd Quarter 2003**

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT FOOT	SETTING DEPTH	QUANTITY OF CEMENT
Refer to Monument Butte Field SOP's Drilling Program/Casing Design				

Inland Production Company proposes to drill this well in accordance with the attached exhibits.

The Conditions of Approval are also attached.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program, if any.

24. SIGNED *Michelle Gorgie* TITLE Regulatory Specialist DATE 10/3/03

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OCT 06 2003



October 3, 2003

Bureau of Land Management  
Attn: Byron Tolman  
170 South 500 East  
Vernal, Utah 84078-2799

RE: Amended Well Name on Application for Permit to Drill: 9-31-8-18, 10-31-8-18, and 14-31-8-18.

Dear Byron:

Enclosed find the amended Form 3160-3 for the above mentioned APD's. We would like to amend the well name from Sundance Federal to Federal. No other information on the APD has changed. If you have any questions, feel free to give either Brad or myself a call.

Sincerely,

Mandie Crozier  
Regulatory Specialist

cc: State of Utah DOGM

enclosures

OCT 06 2003

006

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

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DRILL ☒ DEEPEN ☐

1b. TYPE OF WELL

OIL WELL ☒ GAS WELL ☐ SINGLE ZONE ☐ MULTIPLE ZONE ☒

2. NAME OF OPERATOR

Inland Production Company

3. ADDRESS OF OPERATOR

Route #3 Box 3630, Myton, UT 84052

Phone: (435) 646-3721

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\*

At Surface NE/SE 2142' FSL 744' FEL

At proposed Prod. Zone

OCT - 6 2003

5. LEASE DESIGNATION AND SERIAL NO.

UTU-74404

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

N/A

7. UNIT AGREEMENT NAME

N/A

8. FARM OR LEASE NAME WELL NO

Federal #9-31-8-18

9. API WELL NO.

43-047-34931

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AND SURVEY OR AREA

NE/SE

Sec. 31, T8S, R18E

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Approximately 21.1 miles southeast of Myton, Utah

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OR LEASE LINE, FT. (Also to

Approx. 498' f/lse line

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DRILLING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT.

Approx. 1256'

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Rotary

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3 rd Quarter 2003

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT/FOOT	SETTING DEPTH	QUANTITY OF CEMENT
Refer to Monument Butte Field SOP's Drilling Program/Casing Design				

Inland Production Company proposes to drill this well in accordance with the attached exhibits.

The Conditions of Approval are also attached.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM : If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone.

If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Michael Goyis TITLE Regulatory Specialist DATE 10/3/03

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

NOTICE OF APPROVAL

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY Kirk J. Howard TITLE General Resources DATE 11/17/2003

\*See Instructions On Reverse Side

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NOV 19 2003

CONDITIONS OF APPROVAL ATTACHED

CONDITIONS OF APPROVAL  
APPLICATION FOR PERMIT TO DRILL

Company/Operator: Inland Production Company.

Well Name & Number: Federal 9-31-8-18

API Number 43-047-34931

Lease Number: U-74404

Location: NESE Sec. 31 T.8S R. 18E

Agreement: N/A

For more specific details on notification requirements, please check the Conditions of Approval for Notice to Drill and Surface Use Program.

**CONDITIONS OF APPROVAL**

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be aware fire restrictions may be in effect when location is being constructed and/or when well is being drilled. Contact the appropriate Surface Management Agency for information.

**Please submit to this office, in LAS format, an electronic copy of all logs run on this well  
This submission will replace the requirement for submittal of paper logs to the BLM.**

In the event after-hours approvals are necessary, you must contact one of the following individuals:

Ed Forsman (435) 828-7874  
Petroleum Engineer

Kirk Fleetwood (435) 828-7875  
Petroleum Engineer

BLM FAX Machine (435) 781-4410

**DIVISION OF OIL, GAS AND MINING****SPUDDING INFORMATION**Name of Company: INLAND PRODUCTION COMPANYWell Name: FEDERAL 9-31-8-18Api No: 43-047-34931 Lease Type: FEDERALSection 31 Township 08S Range 18E County UINTAHDrilling Contractor LEON ROSS RATHOLE RIG # 21**SPUDDED:**Date 11/20/03Time 11:00 AMHow DRY

1-CHD  
2-SCAN  
3-PTC

**Drilling will commence:** \_\_\_\_\_Reported by PAT WISENERTelephone # 1-435-823-7468Date 11/20/2003 Signed CHD

008

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING  
ENTITY ACTION FORM - FORM 6

OPERATOR: **INLAND PRODUCTION COMPANY**  
ADDRESS: **RT. 3 BOX 3630**  
**MYTON, UT 84052**

OPERATOR ACCT. NO. **N5160**

ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
A	99999	1322	43-047-34931	Federal 9-31-8-18	NE/SE	31	8S	18E	Uintah	November 20, 2003	11/20/03
WELL 1 COMMENTS: <i>6-11-03</i>											
ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
A	99999	1322	43-047-34463	Sundance 13-32-8-18	SW/SW	32	8S	18E	Uintah	November 20, 2003	11/20/03
WELL 2 COMMENTS: <i>6-11-03</i>											
ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
WELL 3 COMMENTS:											
ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
WELL 4 COMMENTS:											
ACTION CODE	CURRENT ENTITY NO.	NEW ENTITY NO.	API NUMBER	WELL NAME	WELL LOCATION					SPUD DATE	EFFECTIVE DATE
					QQ	SC	TP	RG	COUNTY		
WELL 5 COMMENTS:											

ACTION CODES (See instructions on back of form)

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (explain in comments section)

NOTE: Use COMMENT section to explain why each Action Code was selected.

*Kebble S. Jones*  
Signature  
Production Clerk  
November 21, 2003  
Date

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

FORM APPROVED

Budget Bureau No. 1004-0135

Expires: March 31, 1993

**009****SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry a different reservoir.  
Use "APPLICATION FOR PERMIT -" for such proposals

**SUBMIT IN TRIPLICATE**

## 1. Type of Well

☒ Oil Well    ☐ Gas Well    ☐ Other

## 2. Name of Operator

**INLAND PRODUCTION COMPANY**

## 3. Address and Telephone No.

**Rt. 3 Box 3630, Myton Utah, 84052 435-646-3721**

## 4. Location of Well (Footage, Sec., T., R., m., or Survey Description)

**2142 FSL 744 FEL NE/SE Section 31, T8S R18E**

## 5. Lease Designation and Serial No.

**UTU-74404**

## 6. If Indian, Allottee or Tribe Name

**NA**

## 7. If Unit or CA, Agreement Designation

**N/A**

## 8. Well Name and No.

**FEDERAL 9-31-8-18**

## 9. API Well No.

**43-047-34931**

## 10. Field and Pool, or Exploratory Area

**8 MILE FLAT NORTH**

## 11. County or Parish, State

**UINTAH COUNTY, UT**

## 12. CHECK APPROPRIATE BOX(es) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

## TYPE OF SUBMISSION

☐ Notice of Intent  
☒ Subsequent Report  
☐ Final Abandonment Notice

## TYPE OF ACTION

☐ Abandonment  
☐ Recompletion  
☐ Plugging Back  
☐ Casing Repair  
☐ Altering Casing  
☒ Other **Spud Notice**

☐ Change of Plans  
☐ New Construction  
☐ Non-Routine Fracturing  
☐ Water Shut-Off  
☐ Conversion to Injection  
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

## 13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to the work.)

On 11-20-03 MIRU Ross # 21. Spud well @ 11:00 am. Drill 315' of 12 1/4" hole with air mist. TIH w/ 7 Jt's 85/8" J-55 24# csgn. Set @ 312.42'/KB. On 11-20-03. Cement with 150 sks of Class "G" w/ 2% CaCL2 + 1/4# sk Cello-Flake Mixed @ 15.8 ppg > 1.17 cf/sk yeild. 4 bbls cement returned to surface. WOC.

## 14. I hereby certify that the foregoing is true and correct

Signed

**Pat Wisener**

Title

**Drilling Foreman**

Date

**11/22/2003**

CC: UTAH DOGM

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

CC: Utah DOGM

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**NOV 25 2003**

# INLAND PRODUCTION COMPANY - CASING & CEMENT REPORT

8 5/8 CASING SET 312.42

LAST CASING 8 5/8" SET AT 312.42  
 DATUM 12' KB  
 DATUM TO CUT OFF CASING \_\_\_\_\_  
 DATUM TO BRADENHEAD FLANGE \_\_\_\_\_  
 TD DRILLER 307' LOGGER \_\_\_\_\_  
 HOLE SIZE 12 1/4

OPERATOR Inland Production Company  
 WELL Federal 9-31-8-18  
 FIELD/PROSPECT Monument Butte  
 CONTRACTOR & RIG # Ross # 21

LOG OF CASING STRING:							
PIECES	OD	ITEM - MAKE - DESCRIPTION	WT / FT	GRD	THREAD	CONDT	LENGTH
		43' shoe jt					
		WHI - 92 csg head			8rd	A	0.95
7	8 5/8"	Maverick ST&C csg	24#	J-55	8rd	A	300.57
		<b>GUIDE</b> shoe			8rd	A	0.9
CASING INVENTORY BAL.			FEET	JTS	TOTAL LENGTH OF STRING		302.42
TOTAL LENGTH OF STRING			302.42	7	LESS CUT OFF PIECE		2
LESS NON CSG. ITEMS			1.85		PLUS DATUM TO T/CUT OFF CSG		12
PLUS FULL JTS. LEFT OUT			0		CASING SET DEPTH		<b>312.42</b>
TOTAL			300.57	7	} COMPARE		
TOTAL CSG. DEL. (W/O THRS)			300.57	7			
TIMING			1ST STAGE				
BEGIN RUN CSG.			SPUD	11:00am	GOOD CIRC THRU JOB		
CSG. IN HOLE			11/20/2003		Bbls CMT CIRC TO SURF <u>                    </u> bbls cement		
BEGIN CIRC					RECIPROCATED PIPE F N/A <u>          </u> N/A <u>          </u>		
BEGIN PUMP CMT					DID BACK PRES. VALVE HOLD ? <u>          </u> N/A <u>          </u>		
BEGIN DSPL. CMT					BUMPED PLUG TO <u>                    </u> 200 <u>          </u> PSI		
PLUG DOWN			<b>Cemented</b>	<b>11/20/2003</b>			
CEMENT USED		CEMENT COMPANY- <b>B. J.</b>					
STAGE	# SX	CEMENT TYPE & ADDITIVES					
1	150	Class "G" w/ 2% CaCL2 + 1/4#/sk Cello-Flake mixed @ 15.8 ppg 1.17 cf/sk yield					
CENTRALIZER & SCRATCHER PLACEMENT				SHOW MAKE & SPACING			
Centralizers - Middle first, top second & third for 3							

COMPANY REPRESENTATIVE Floyd Mitchell

DATE 11/20/2003

NOV 25 2003

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry a different reservoir.  
Use "APPLICATION FOR PERMIT -" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

INLAND PRODUCTION COMPANY

3. Address and Telephone No.

Rt. 3 Box 3630, Myton Utah, 84052 435-646-3721

4. Location of Well (Footage, Sec., T., R., m., or Survey Description)

2142 FSL 744 FEL NE/SE Section 31, T8S R18E

5. Lease Designation and Serial No.

UTU-74404

6. If Indian, Allottee or Tribe Name

NA

7. If Unit or CA, Agreement Designation

N/A

8. Well Name and No.

FEDERAL 9-31-8-18

9. API Well No.

43-047-34931

10. Field and Pool, or Exploratory Area

8 MILE FLAT NORTH

11. County or Parish, State

UINTAH COUNTY, UT

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

☐ Notice of Intent  
☒ Subsequent Report  
☐ Final Abandonment Notice

TYPE OF ACTION

☐ Abandonment  
☐ Recompletion  
☐ Plugging Back  
☐ Casing Repair  
☐ Altering Casing  
☒ Other Weekly Status Report

☐ Change of Plans  
☐ New Construction  
☐ Non-Routine Fracturing  
☐ Water Shut-Off  
☐ Conversion to Injection  
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

On 11/22/03. MIRU Eagle Rig # 1. Set equipment. Pressure test Bop's, Kelly, & TIW to 2,000 psi. Test 85/8" csgn to 1,500 psi. Vernal BLM office was notified of test. PU BHA and tag cement @ 265'. Drill out cement & shoe. Continue to drill a 77/8" hole with fresh water to a depth of 6190'. Lay down drill string, BHA. Open hole log from TD to surface. PU & MU guide shoe, 1 jt 51/2" J-55 15.5 # csgn. Float collar, & 137 Jt's 51/2" J-55 15.5# csgn. Set @ 6176' KB. Cement with 320 sks Prem Lite II w/ 3% KCL, 10 % Gel, 5#"s sk CSE, 2#"s sk Kolseal, .8% Sms, 1/2# sks Celloflake. Mixed @ 11.0 ppg, >3.42 yld. Followed by 400 sks 50/50 Poz w/ 3% KCL, 2% Gel, .05% Static free, 1/2# sk Celloflake. Mixed @ 14.4 ppg, > 1.24 yld. Drop plug displace with 146 bbls fresh water, good returns thruout job, No cement to surface. Nipple down BOP's. set slips @ 85,000 # 's tension. Clean pit's & release rig @ 10:00 AM on 11/29/2003. Est.cement top @ 1035'

14. I hereby certify that the foregoing is true and correct

Signed

Floyd Mitchell  
Floyd Mitchell

Title

Drilling Foreman

Date

11/30/2003

CC: UTAH DOGM

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

CC: Utah DOGM

DEC 07 2003

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires January 31, 2004

011

**SUNDRY NOTICES AND REPORTS ON WELLS**  
Do not use this form for proposals to drill or to re-enter an  
abandoned well. Use Form 3160-3 (APD) for such proposals.

**SUBMIT IN TRIPLICATE - Other Instructions on reverse side**

1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator  
Inland Production Company

3a. Address Route 3 Box 3630  
Myton, UT 84052

3b. Phone No. (include area code)  
435.646.3721

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2142 FSL 744 FEL  
NE/SE Section 31 T8S R18E

5. Lease Serial No.  
**4T474404**

6. If Indian, Allottee or Tribe Name.

7. If Unit or CA/Agreement, Name and/or No.  
EIGHT MILE FLAT AREA

8. Well Name and No.  
FEDERAL 9-31-8-18

9. API Well No.  
4304734931

10. Field and Pool, or Exploratory Area  
Monument Butte

11. County or Parish, State  
Utah, UT

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production(Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug & Abandon	<input type="checkbox"/> Temporarily Abandon	Weekly Status Report
	<input type="checkbox"/> Convert to Injector	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontalley, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work is performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation requires a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Status report for time period 12/9/03 - 12/16/03 Subject well had completion procedures initiated in the Green River formation on 12/9/03 without the use of a service rig over the well. A cement bond log was run and a total of five Green River intervals were perforated and hydraulically fracture treated w/ 20/40 mesh sand. Perf intervals were #1 (5903-5912') (4 JSPF); #2 (5792-5822') (2 JSPF); #3 (5444-5455') (4 JSPF); #4 (5252-5262'), (5242-5248'), (5216-5221'), (5189-5206) (All 2 JSPF); #5 (4466-4472'), (4457-4460'), (4417-4422') (All 4 JSPF). Composite flow-through frac plugs were used between stages. Fracs were flowed back through chokes. A service rig was moved on well on 12/11/03. Bridge plugs were drilled out. Well was cleaned out to PBTD @ 6158'. Zones were swab tested for sand cleanup. A BHA & production log string were run in and anchored in well. End of tubing string @ 5968.10'. A new 1 1/2" bore rod pump was run in well on sucker rods. Well was placed on production via rod pump on 12/16/03.

I hereby certify that the foregoing is true and correct

Name (Printed/ Typed)  
Martha Hall

Title

Office Manager

Signature

Date

12/17/2003

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Conditions of approval, if any, are attached. Approval of this notice does not warrant or which would entitle the applicant to conduct operations thereon.  
certify that the applicant holds legal or equitable title to those rights in the subject lease

Title

Date

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious and fraudulent statements or representations as to any matter within its jurisdiction

(Instructions on reverse)

DEC 18 2003



January 20, 2004

State of Utah, Division of Oil, Gas and Mining  
Attn: Ms. Carol Daniels  
P.O. Box 145801  
Salt Lake City, Utah 84144-5801

Attn: Ms. Carol Daniels

Federal 9-31-8-18 (43-047-34931)  
Uintah County, Utah

Dear Ms. Carol Daniels

Enclosed is a Well Completion or Recompletion Report and Log form (Form 3160-4). We are no longer sending Log copies since Dave Jull of Phoenix Surveys is already doing so.

If you should have any questions, please contact me at (303) 382-4449.

Sincerely,

Brian Harris  
Engineering Tech

Enclosures

cc: Bureau of Land Management  
Vernal District Office, Division of Minerals  
Attn: Edwin I. Forsman  
170 South 500 East  
Vernal, Utah 84078

Well File – Denver  
Well File – Roosevelt  
Patsy Barreau/Denver  
Bob Jewett/Denver  
Matt Richmond/Roosevelt

IAN 7 1 04

SUBMIT IN DUPLICATE\*

FORM APPROVED

(See other in-  
structions on  
reverse side)

OMB NO. 1004-0137

Expires: February 28, 1995

012

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG\*

## 1a. TYPE OF WORK

OIL  
WELL ☒GAS  
WELL ☐DRY ☐

Other \_\_\_\_\_

## 1b. TYPE OF WELL

NEW  
WELL ☒WORK  
OVER ☐DEEPEN ☐PLUG  
BACK ☐DIFF  
RESVR. ☐

Other \_\_\_\_\_

## 2. NAME OF OPERATOR

INLAND RESOURCES INC.

## 3. ADDRESS AND TELEPHONE NO.

410 17th St. Suite 700 Denver, CO 80202

## 4. LOCATION OF WELL (Report locations clearly and in accordance with any State requirements.)\*

At Surface

2142' FSL &amp; 744' FEL (NESE) Sec. 31, Twp 8S, Rng 18E

At top prod. Interval reported below

At total depth

14. API NO

43-047-34931

DATE ISSUED

4/8/2003

## 15. DATE SPUDDED

11/21/03

## 16. DATE T.D. REACHED

11/29/03

## 17. DATE COMPL. (Ready to prod.)

12/16/2003

## 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)\*

4978' GL

4990' KB

## 19. ELEV. CASINGHEAD

## 20. TOTAL DEPTH, MD &amp; TVD

6190'

## 21. PLUG BACK T.D., MD &amp; TVD

6158'

22. IF MULTIPLE COMPL.,  
HOW MANY\*23. INTERVALS  
DRILLED BY

-----&gt;

## ROTARY TOOLS

X

## CABLE TOOLS

## 24. PRODUCING INTERVAL(S), OF THIS COMPLETION--TOP, BOTTOM, NAME (MD AND TVD)\*

Green River 4417'-5912'

25. WAS DIRECTIONAL  
SURVEY MADE

No

## 26. TYPE ELECTRIC AND OTHER LOGS RUN

Dual Induction Guard, SP, Compensated Density, Compensated Neutron, GR, Caliper, Cement Bond Log

## 27. WAS WELL CORED

No

## 28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8-5/8" - J-55	24#	312'	12-1/4"	To surface with 150 sx Class "G" cmt	
5-1/2" - J-55	15.5#	6176'	7-7/8"	320 sx Premlite II and 400 sx 50/50 Poz	

## 29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2-7/8"	EOT @	TA @
						5968'	5866'

## 31. PERFORATION RECORD (Interval, size and number)

INTERVAL	SIZE	SPE/NUMBER	DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
(CP3) 5903-5912'	.038"	4/36	5903-5912'	Frac w/ 29,872# 20/40 sand in 340 bbls fluid.
(CP1) 5792-5822'	.038"	2/60	5792-5822'	Frac w/ 100,090# 20/40 sand in 730 bbls fluid.
(LODC) 5444'-5455'	.038"	4/44	5444-5455'	Frac w/ 64,383# 20/40 sand in 517 bbls fluid.
(A.5, B1.2) 5189-5206', 526-5221'				
5242'-5248', 5252'-5262'	.038"	2/76	5189'-5262'	Frac w/ 139,662# 20/40 sand in 951 bbls fluid.
(GB4.6) 4417-22', 4457-60', 4466-72'	.038"	4/56	4417-4472'	Frac w/ 40,565# 20/40 sand in 360 bbls fluid.

## 32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.\*

DATE FIRST PRODUCTION		PRODUCTION METHOD (Flowing, gas lift, pumping--size and type of pump)					WELL STATUS (Producing or shut-in)	
12/16/2003		2-1/2" x 1-1/2" x 15' RHAC Pump					PRODUCING	
DATE OF TEST	HOURS TESTED	CHOKO SIZE	PROD'N. FOR TEST PERIOD	OIL--BBL.	GAS--MCF.	WATER--BBL.		GAS-OIL RATIO
10 day ave			----->	64	112	16		1750
FLOW: TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL--BBL.	GAS--MCF.	WATER--BBL.		OIL GRAVITY-API (CORR.)	
		----->						

## 34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

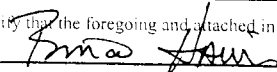
Sold &amp; Used for Fuel

TEST WITNESSED BY

## 35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED



TITLE

Engineering Technician

DATE

1/20/2004

Brian Harris

\*(See Instructions and Spaces for Additional Data on Reverse Side)

BDH

37. SUMMARY OF POROUS ZONES: (Show all important zones of porosity and contents thereof; cored intervals, and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries);				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP	
					MEAS. DEPTH	TRUE VERT. DEPTH
			Well Name Federal 9-31-8-18	Garden Gulch Mkr	3874'	
				Garden Gulch 1	4098'	
				Garden Gulch 2	4009'	
				Point 3 Mkr	4480'	
				X Mkr	4703'	
				Y-Mkr	4742'	
				Douglas Creek Mkr	4876'	
				BiCarbonate Mkr	5110'	
				B Limestone Mkr		
				Castle Peak	5689'	
				Basal Carbonate	6106'	
				Total Depth (LOGGERS)	6190'	

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry a different reservoir.  
Use "APPLICATION FOR PERMIT -" for such proposals

5. Lease Designation and Serial No.

**UTU-74404**

6. If Indian, Allottee or Tribe Name

**NA**

7. If Unit or CA, Agreement Designation

**N/A**

8. Well Name and No.

**FEDERAL 9-31-8-18**

9. API Well No.

**43-047-34931**

10. Field and Pool, or Exploratory Area

**8 MILE FLAT NORTH**

11. County or Parish, State

**UINTAH COUNTY, UT**

**SUBMIT IN TRIPLICATE**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

**INLAND PRODUCTION COMPANY**

3. Address and Telephone No.

**Rt. 3 Box 3630, Myton Utah, 84052 435-646-3721**

4. Location of Well (Footage, Sec., T., R., m., or Survey Description)

**2142 FSL 744 FEL NE/SE Section 31, T8S R18E**

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

**TYPE OF SUBMISSION**

☒ Notice of Intent  
☐ Subsequent Report  
☐ Final Abandonment Notice

**TYPE OF ACTION**

☐ Abandonment  
☐ Recompletion  
☐ Plugging Back  
☐ Casing Repair  
☐ Altering Casing  
☐ Other \_\_\_\_\_  
☐ Change of Plans  
☐ New Construction  
☐ Non-Routine Fracturing  
☐ Water Shut-Off  
☐ Conversion to Injection  
☒ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)\*

Formation water is produced to a steel storage tank. If the production water meets quality guidelines, it is transported to the Ashley, Monument Butte, Jonah, and Beluga water injection facilities by company or contract trucks. Subsequently, the produced water is injected into approved Class II wells to enhance Inland's secondary recovery project.

Water not meeting quality criteria, is disposed at Inland's Pariette #4 disposal well (Sec. 7, T9S R19E) or at State of Utah approved surface disposal facilities.

Accepted by the  
Utah Division of  
Oil, Gas and Mining  
FOR RECORD

**FEB 13 2004**

14. I hereby certify that the foregoing is true and correct

Signed

*Mandie Crozier*  
Mandie Crozier

Title

Regulatory Specialist

Date

2/11/2004

CC: UTAH DOGM

(This space for Federal or State office use)

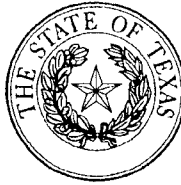
Approved by

Title

Date

Conditions of approval, if any:

CC: Utah DOGM



## Office of the Secretary of State

The undersigned, as Secretary of State of Texas, does hereby certify that the attached is a true and correct copy of each document on file in this office as described below:

Newfield Production Company  
Filing Number: 41530400

Articles of Amendment

September 02, 2004

In testimony whereof, I have hereunto signed my name officially and caused to be impressed hereon the Seal of State at my office in Austin, Texas on September 10, 2004.



A handwritten signature in black ink, appearing to read "G. Connor".

Secretary of State

ARTICLES OF AMENDMENT  
TO THE  
ARTICLES OF INCORPORATION  
OF  
INLAND PRODUCTION COMPANY

FILED  
In the Office of the  
Secretary of State of Texas  
SEP 02 2004  
Corporations Section

Pursuant to the provisions of Article 4.04 of the Texas Business Corporation Act (the "TBCA"), the undersigned corporation adopts the following articles of amendment to the articles of incorporation:

ARTICLE 1 – Name

The name of the corporation is Inland Production Company.

ARTICLE 2 – Amended Name

The following amendment to the Articles of Incorporation was approved by the Board of Directors and adopted by the shareholders of the corporation on August 27, 2004.

The amendment alters or changes Article One of the Articles of Incorporation to change the name of the corporation so that, as amended, Article One shall read in its entirety as follows:

"ARTICLE ONE – The name of the corporation is Newfield Production Company."

ARTICLE 3 – Effective Date of Filing

This document will become effective upon filing.

The holder of all of the shares outstanding and entitled to vote on said amendment has signed a consent in writing pursuant to Article 9.10 of the TBCA, adopting said amendment, and any written notice required has been given.

IN WITNESS WHEREOF, the undersigned corporation has executed these Articles of Amendment as of the 1<sup>st</sup> day of September, 2004.

INLAND RESOURCES INC.

By: Susan G. Riggs  
Susan G. Riggs, Treasurer



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office  
P.O. Box 45155  
Salt Lake City, UT 84145-0155  
<http://www.blm.gov>



IN REPLY REFER TO:  
3106  
(UT-924)

September 16, 2004

### Memorandum

To: Vernal Field Office  
From: Acting Chief, Branch of Fluid Minerals  
Subject: Merger Approval

Attached is an approved copy of the name change recognized by the Utah State Office. We have updated our records to reflect the merger from Inland Production Company into Newfield Production Company on September 2, 2004.

Michael Coulthard  
Acting Chief, Branch of  
Fluid Minerals

### Enclosure

1. State of Texas Certificate of Registration

cc: MMS, Reference Data Branch, James Sykes, PO Box 25165, Denver CO 80225  
State of Utah, DOGM, Attn: Earlene Russell, PO Box 145801, SLC UT 84114  
Teresa Thompson  
Joe Incardine  
Connie Seare

UTSL-	15855	61052	73088	76561	
071572A	16535	62848	73089	76787	
065914	16539	63073B	73520A	76808	
	16544	63073D	74108	76813	
	17036	63073E	74805	76954	63073X
	17424	63073O	74806	76956	63098A
	18048	64917	74807	77233	68528A
UTU-	18399	64379	74808	77234	72086A
	19267	64380	74389	77235	72613A
02458	26026A	64381	74390	77337	73520X
03563	30096	64805	74391	77338	74477X
03563A	30103	64806	74392	77339	75023X
04493	31260	64917	74393	77357	76189X
05843	33992	65207	74398	77359	76331X
07978	34173	65210	74399	77365	76788X
09803	34346	65635	74400	77369	77098X
017439B	36442	65967	74404	77370	77107X
017985	36846	65969	74405	77546	77236X
017991	38411	65970	74406	77553	77376X
017992	38428	66184	74411	77554	78560X
018073	38429	66185	74805	78022	79485X
019222	38431	66191	74806	79013	79641X
020252	39713	67168	74826	79014	80207X
020252A	39714	67170	74827	79015	81307X
020254	40026	67208	74835	79016	
020255	40652	67549	74868	79017	
020309D	40894	67586	74869	79831	
022684A	41377	67845	74870	79832	
027345	44210	68105	74872	79833	
034217A	44426	68548	74970	79831	
035521	44430	68618	75036	79834	
035521A	45431	69060	75037	80450	
038797	47171	69061	75038	80915	
058149	49092	69744	75039	81000	
063597A	49430	70821	75075		
075174	49950	72103	75078		
096547	50376	72104	75089		
096550	50385	72105	75090		
	50376	72106	75234		
	50750	72107	75238		
10760	51081	72108	76239		
11385	52013	73086	76240		
13905	52018	73087	76241		
15392	58546	73807	76560		

## OPERATOR CHANGE WORKSHEET

## ROUTING

1. GLH

2. CDW

3. FILE

013

Change of Operator (Well Sold)

Designation of Agent/Operator

X Operator Name Change

Merger

The operator of the well(s) listed below has changed, effective:

9/1/2004

**FROM:** (Old Operator):

N5160-Inland Production Company

Route 3 Box 3630

Myton, UT 84052

Phone: 1-(435) 646-3721

**TO:** ( New Operator):

N2695-Newfield Production Company

Route 3 Box 3630

Myton, UT 84052

Phone: 1-(435) 646-3721

CA No.

Unit:

**WELL(S)**

NAME	SEC TWN RNG			API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS	
FEDERAL 3-31-8-18	31	080S	180E	4304734496	13915	Federal	OW	P	K
FEDERAL 4-31-8-18	31	080S	180E	4304734497	13942	Federal	OW	DRL	K
FEDERAL 5-31-8-18	31	080S	180E	4304734498	13898	Federal	OW	P	K
FEDERAL 6-31-8-18	31	080S	180E	4304734499	13960	Federal	OW	P	K
FEDERAL 7-31-8-18	31	080S	180E	4304734500	13925	Federal	OW	P	K
FEDERAL 11-31-8-18	31	080S	180E	4304734501	13924	Federal	OW	P	K
FEDERAL 12-31-8-18	31	080S	180E	4304734502	13958	Federal	OW	P	K
FEDERAL 13-31-8-18	31	080S	180E	4304734503	14324	Federal	OW	P	K
FEDERAL 8-31-8-18	31	080S	180E	4304734504	13961	Federal	OW	P	K
FEDERAL 10-31-8-18	31	080S	180E	4304734930	13986	Federal	OW	P	K
FEDERAL 9-31-8-18	31	080S	180E	4304734931	13963	Federal	OW	P	K
FEDERAL 2-1-9-17	01	090S	170E	4304734938		Federal	OW	APD	K
FEDERAL 3-1-9-17	01	090S	170E	4304734939		Federal	OW	APD	K
FEDERAL 8-1-9-17	01	090S	170E	4304734940		Federal	OW	APD	K
FEDERAL 5-6-9-18	06	090S	180E	4304734932		Federal	OW	APD	K
FEDERAL 6-6-9-18	06	090S	180E	4304734933	14152	Federal	OW	P	K
FEDERAL 7-6-9-18	06	090S	180E	4304734934	14126	Federal	OW	P	K
FEDERAL 8-6-9-18	06	090S	180E	4304734935		Federal	OW	APD	K
FEDERAL 13-6-9-18	06	090S	180E	4304734936	14049	Federal	OW	P	K
FEDERAL 14-6-9-18	06	090S	180E	4304734937	14064	Federal	OW	P	K

**OPERATOR CHANGES DOCUMENTATION**

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 9/15/20042. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 9/15/20043. The new company was checked on the **Department of Commerce, Division of Corporations Database** on: 2/23/20054. Is the new operator registered in the State of Utah: YES Business Number: 755627-01435. If **NO**, the operator was contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: IN PLACE  
6b. Inspections of LA PA state/fee well sites complete on: waived

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM BIA

8. **Federal and Indian Units:**  
The BLM or BIA has approved the successor of unit operator for wells listed on: n/a

9. **Federal and Indian Communization Agreements ("CA"):**  
The BLM or BIA has approved the operator for all wells listed within a CA on: na/

10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject**, for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 2/23/2005

#### DATA ENTRY:

1. Changes entered in the **Oil and Gas Database** on: 2/28/2005
2. Changes have been entered on the **Monthly Operator Change Spread Sheet** on: 2/28/2005
3. Bond information entered in RBDMS on: 2/28/2005
4. Fee/State wells attached to bond in RBDMS on: 2/28/2005
5. Injection Projects to new operator in RBDMS on: 2/28/2005
6. Receipt of Acceptance of Drilling Procedures for APD/New on: waived

#### FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: UT 0056

#### INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: 61BSBDH2912

#### FEE & STATE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number 61BSBDH2919
2. The **FORMER** operator has requested a release of liability from their bond on: n/a\*  
The Division sent response by letter on: n/a

#### LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

#### COMMENTS:

\*Bond rider changed operator name from Inland Production Company to Newfield Production Company - **received 2/23/05**



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office  
P.O. Box 45155  
Salt Lake City, UT 84145-0155



IN REPLY REFER TO  
3180  
UT-922

June 30, 2005

Newfield Production Company  
Attn: Kelly L. Donohoue  
1401 Seventeenth Street, Suite 1000  
Denver, Colorado 80202

Gentlemen:

The Sundance (Green River) Unit Agreement, Uintah County, Utah, was approved June 30, 2005. This agreement has been designated No. UTU82472X, and is effective July 1, 2005. The unit area embraces 11,143.86 acres, more or less.

Pursuant to regulations issued and effective June 17, 1988, all operations within the Sundance (Green River) Unit will be covered by your nationwide (Utah) oil and gas bond No. 0056.

The following leases embrace lands included within the unit area:

UTU0075174	UTU39713	UTU65970*	UTU79013*
UTU16539*	UTU39714	UTU74404	UTU79014*
UTU16540	UTU44429	UTU74835	UTU80915
UTU17424*	UTU64806*	UTU74872*	UTU82205
UTU18043	UTU65969	UTU75234	

\* Indicates lease to be considered for segregation by the Bureau of Land Management pursuant to Section 18 (g) of the unit agreement and Public Law 86-705.

All lands and interests by State of Utah, Cause No. 228-08 are fully committed.

Approval of this agreement does not warrant or certify that the operator thereof and other holders of operating rights hold legal or equitable title to those rights in the subject leases which are committed hereto.

RECEIVED

JUL 0 / 2005

DIV. OF OIL, GAS & MINING

*Docket No  
2005-009*

We are of the opinion that the agreement is necessary and advisable in the public interest and for the purpose of more properly conserving natural resources. Certification-Determination, signed by the School and Institutional Trust Land Administration for the State of Utah, is attached to the enclosed agreement. We request that you furnish the State of Utah and all other interested principals with appropriate evidence of this approval.

Sincerely,

/s/ Terry Catlin

Terry Catlin  
Acting Chief, Branch of Fluid Minerals

Enclosure

bcc: Mary Higgins w/enclosure  
MMS - Data Management Division (Attn: James Sykes)  
Trust Lands Administration  
Division of Oil, Gas and Mining  
Field Manager - Vernal w/enclosure  
File - Sundance (Green River) Unit w/enclosure  
Agr. Sec. Chron  
Fluid Chron  
Central Files

UT922:TAThompson:tt:06/30/2005

Entity Form 6  
"C" Change from one existing entity to another existing entity

API	Well	Sec	Twsp	Rng	Entity	Entity Eff Date
4301316218	CASTLE DRAW 16-10-9-17	10	090S	170E	8120 to 14844	9/20/2005
4301330568	FEDERAL 8-10-9-17	10	090S	170E	8000 to 14844	9/20/2005
4301332502	FEDERAL 9-10-9-17	10	090S	170E	14325 to 14844	9/20/2005
4301331593	MON FED 11-11-9-17Y	11	090S	170E	11904 to 14844	9/20/2005
4301332486	FEDERAL 5-11-9-17	11	090S	170E	14285 to 14844	9/20/2005
4301332510	FEDERAL 13-11-9-17	11	090S	170E	14273 to 14844	9/20/2005
4301332544	FEDERAL 12-11-9-17	11	090S	170E	14613 to 14844	9/20/2005
4301332704	FEDERAL 12-14-9-17	14	090S	170E	14786 to 14844	9/20/2005
4301331023	FEDERAL 15-1-B	15	090S	170E	10201 to 14844	9/20/2005
4304734494	FEDERAL 1-31-8-18	31	080S	180E	13927 to 14844	9/20/2005
4304734495	FEDERAL 2-31-8-18	31	080S	180E	13959 to 14844	9/20/2005
4304734496	FEDERAL 3-31-8-18	31	080S	180E	13915 to 14844	9/20/2005
4304734497	FEDERAL 4-31-8-18	31	080S	180E	13942 to 14844	9/20/2005
4304734498	FEDERAL 5-31-8-18	31	080S	180E	13898 to 14844	9/20/2005
4304734499	FEDERAL 6-31-8-18	31	080S	180E	13960 to 14844	9/20/2005
4304734500	FEDERAL 7-31-8-18	31	080S	180E	13925 to 14844	9/20/2005
4304734501	FEDERAL 11-31-8-18	31	080S	180E	13924 to 14844	9/20/2005
4304734502	FEDERAL 12-31-8-18	31	080S	180E	13958 to 14844	9/20/2005
4304734503	FEDERAL 13-31-8-18	31	080S	180E	14324 to 14844	9/20/2005
4304734504	FEDERAL 8-31-8-18	31	080S	180E	13961 to 14844	9/20/2005
4304734930	FEDERAL 10-31-8-18	31	080S	180E	13986 to 14844	9/20/2005
4304734931	FEDERAL 9-31-8-18	31	080S	180E	13963 to 14844	9/20/2005
4304731116	NGC ST 33-32	32	080S	180E	6210 to 14844	9/20/2005
4304732500	STATE 31-32	32	080S	180E	11645 to 14844	9/20/2005
4304732685	SUNDANCE ST 5-32	32	080S	180E	11781 to 14844	9/20/2005
4304732740	SUNDANCE ST 1-32R-8-18	32	080S	180E	11886 to 14844	9/20/2005
4304732741	SUNDANCE ST 3-32	32	080S	180E	12059 to 14844	9/20/2005
4304732827	SUNDANCE ST 4-32	32	080S	180E	12106 to 14844	9/20/2005
4304734458	SUNDANCE 7-32-8-18	32	080S	180E	13987 to 14844	9/20/2005
4304734459	SUNDANCE 8-32-8-18	32	080S	180E	14047 to 14844	9/20/2005
4304734460	SUNDANCE 9-32-8-18	32	080S	180E	13988 to 14844	9/20/2005
4304734461	SUNDANCE 11-32-8-18	32	080S	180E	13962 to 14844	9/20/2005
4304734462	SUNDANCE 12-32-8-18	32	080S	180E	14031 to 14844	9/20/2005
4304734463	SUNDANCE 13-32-8-18	32	080S	180E	13964 to 14844	9/20/2005
4304734464	SUNDANCE 14-32-8-18	32	080S	180E	14046 to 14844	9/20/2005



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18th STREET - SUITE 300  
DENVER, CO 80202-2466  
<http://www.epa.gov/region08>

JUL 14 2006

Ref: 8P-W-GW

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Accepted by the  
Utah Division of  
Oil, Gas and Mining  
**FOR RECORD ONLY**

David Gerbig  
Newfield Production Company  
1401 Seventeenth Street  
Suite 1000  
Denver, CO 80202

43-047-34931  
8S 18E 31

Re: Underground Injection Control Program  
Permit for the Federal 9-31-8-18 Well  
Uintah County, UT  
EPA Permit No. UT21024-06977

Dear Mr. Gerbig:

Enclosed is your copy of the FINAL Underground Injection Control (UIC) Permit for the proposed Federal 9-31-8-18 injection well. A Statement of Basis, which discusses development of the conditions and requirements of the Permit, also is included.

The Public Comment period ended on JUL 6 2006. There were no comments on the Draft Permit received during the Public Notice period, and therefore the Final Permit becomes effective on the date of issuance. All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations (CFR) and are regulations that are in effect on the date that this Permit becomes effective.

Please note that under the terms of the Final Permit, you are authorized only to construct the proposed injection well, and must fulfill the "Prior to Commencing Injection" requirements of the Permit, Part II Section C Subpart 1 and obtain written Authorization to Inject prior to commencing injection. It is your responsibility to be familiar with and to comply with all provisions of the Final Permit.

The Permit and the authorization to inject are issued for the operating life of the well unless terminated (Part III, Section B). The EPA will review this Permit at least every five (5) years to determine whether action under 40 CFR § 144.36(a) is warranted.

RECEIVED

JUL 19 2006



Printed on Recycled Paper DIV OF OIL, GAS & MINING

If you have any questions on the enclosed Final Permit or Statement of Basis, please call Emmett Schmitz of my staff at (303) 312-6174, or toll-free at (800) 227-8917, ext. 6174.

Sincerely,



Stephen S. Tuber  
Assistant Regional Administrator  
Office of Partnerships and Regulatory Assistance

enclosure:      Final UIC Permit  
                     Statement of Basis  
                     Form 7520-7 Application to Transfer Permit  
                     Form 7520-11 Monitoring Report  
                     Form 7520-14 Plugging Plan  
                     Form 7520-12 Well Rework Record  
                     Groundwater Section Guidance 34  
                     Groundwater Section Guidance 35  
                     Groundwater Section Guidance 37  
                     Groundwater Section Guidance 39

cc:                w/ enclosures:

                     Maxine Natchees  
                     Acting Chairperson  
                     Uintah & Ouray Business Committee  
                     Ute Indian Tribe

                     S. Elaine Willie  
                     Environmental Coordinator  
                     Ute Indian Tribe

                     Lynn Becker  
                     Director  
                     Energy & Minerals Dept.  
                     Ute Indian Tribe

Chester Mills  
Superintendent  
Bureau of Indian Affairs  
Uintah & Ouray Indian Agency

Michael Guinn  
Vice President - Operations  
Newfield Production Company  
Myton, Utah

Gilbert Hunt  
Technical Services Manager  
State of Utah - Natural Resources

Fluid Minerals Engineering Office  
U.S. Bureau of Land Management  
Vernal, Utah





**UNDERGROUND INJECTION CONTROL PROGRAM  
PERMIT**

PREPARED: July 2006

**Permit No. UT21024-06977**

Class II Enhanced Oil Recovery Injection Well

**Federal 9-31-8-18  
Uintah County, UT**

Issued To

**Newfield Production Company**

1401 Seventeenth Street

Suite 1000

Denver, CO 80202

## Part I. AUTHORIZATION TO CONSTRUCT AND OPERATE

Under the authority of the Safe Drinking Water Act and Underground Injection Control (UIC) Program regulations of the U. S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations (40 CFR) Parts 2, 124, 144, 146, and 147, and according to the terms of this Permit,

Newfield Production Company  
1401 Seventeenth Street  
Suite 1000  
Denver, CO 80202

is authorized to construct and to operate the following Class II injection well or wells:

Federal 9-31-8-18  
2142' FSL & 744' FEL, NESE S31, T8S, R18E  
Uintah County, UT

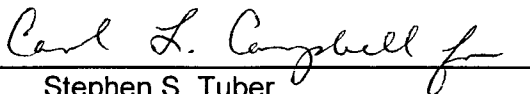
Permit requirements herein are based on regulations found in 40 CFR Parts 124, 144, 146, and 147 which are in effect on the Effective Date of this Permit. Issuance of this Permit does not convey any property rights of any sort, nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of other federal, State or local law or regulation.

This Permit is based on representations made by the applicant and on other information contained in the Administrative Record. Misrepresentation of information or failure to fully disclose all relevant information may be cause for termination, revocation and reissuance, or modification of this Permit and/or formal enforcement action. This Permit will be reviewed periodically to determine whether action under 40 CFR 144.36(a) is required.

This Permit is issued for the life of the well or wells unless modified, revoked and reissued, or terminated under 40 CFR 144.39 or 144.40. This Permit may be adopted, modified, revoked and reissued, or terminated if primary enforcement authority for this program is delegated to an Indian Tribe or a State. Upon the effective date of delegation, all reports, notifications, questions and other compliance actions shall be directed to the Indian tribe or State Program Director or designee.

Issue Date: JUL 14 2006

Effective Date JUL 14 2006



Stephen S. Tuber  
Assistant Regional Administrator\*  
Office of Partnerships and Regulatory Assistance

\*NOTE: The person holding this title is referred to as the "Director" throughout this Permit.

## **PART II. SPECIFIC PERMIT CONDITIONS**

### **Section A. WELL CONSTRUCTION REQUIREMENTS**

These requirements represent the approved minimum construction standards for well casing and cement, injection tubing, and packer.

Details of the approved well construction plan are incorporated into this Permit as APPENDIX A. Changes to the approved plan that may occur during construction must be approved by the Director prior to being physically incorporated.

#### **1. Casing and Cement.**

The well or wells shall be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The well casing and cement shall be designed for the life expectancy of the well and of the grade and size shown in APPENDIX A. Remedial cementing may be required if shown to be inadequate by cement bond log or other attempted demonstration of Part II (External) mechanical integrity.

#### **2. Injection Tubing and Packer.**

Injection tubing is required, and shall be run and set with a packer at or below the depth indicated in APPENDIX A. The packer setting depth may be changed provided it remains below the depth indicated in APPENDIX A and the Permittee provides notice and obtains the Director's approval for the change.

#### **3. Sampling and Monitoring Devices.**

The Permittee shall install and maintain in good operating condition:

- (a) a "tap" at a conveniently accessible location on the injection flow line between the pump house or storage tanks and the injection well, isolated by shut-off valves, for collection of representative samples of the injected fluid; and
- (b) one-half (1/2) inch female iron pipe fitting, isolated by shut-off valves and located at the wellhead at a conveniently accessible location, for the attachment of a pressure gauge capable of monitoring pressures ranging from normal operating pressures up to the Maximum Allowable Injection Pressure specified in APPENDIX C:
  - (i) on the injection tubing; and
  - (ii) on the tubing-casing annulus (TCA); and
- (c) a pressure actuated shut-off device attached to the injection flow line set to shut-off the injection pump when or before the Maximum Allowable Injection Pressure specified in APPENDIX C is reached at the wellhead; and
- (d) a non-resettable cumulative volume recorder attached to the injection line.

#### **4. Well Logging and Testing**

Well logging and testing requirements are found in APPENDIX B. The Permittee shall ensure the log and test requirements are performed within the time frames specified in APPENDIX B. Well logs and tests shall be performed according to current EPA-approved procedures. Well log and test results shall be submitted to the Director within sixty (60) days of completion of the logging or testing activity, and shall include a report describing the methods used during logging or testing and an interpretation of the test or log results.

#### **5. Postponement of Construction or Conversion**

The Permittee shall complete well construction within one year of the Effective Date of the Permit, or in the case of an Area Permit within one year of authorization of the additional well. Authorization to construct and operate shall expire if the well has not been constructed within one year of the Effective Date of the Permit or authorization and the Permit may be terminated under 40 CFR 144.40, unless the Permittee has notified the Director and requested an extension prior to expiration. Notification shall be in writing, and shall state the reasons for the delay and provide an estimated completion date. Once Authorization has expired under this part, the complete permit process including opportunity for public comment may be required before Authorization to construct and operate may be reissued.

#### **6. Workovers and Alterations**

Workovers and alterations shall meet all conditions of the Permit. Prior to beginning any addition or physical alteration to an injection well that may significantly affect the tubing, packer or casing, the Permittee shall give advance notice to the Director and obtain the Director's approval. The Permittee shall record all changes to well construction on a Well Rework Record (EPA Form 7520-12), and shall provide this and any other record of well workover, logging, or test data to EPA within sixty (60) days of completion of the activity.

A successful demonstration of Part I MI is required following the completion of any well workover or alteration which affects the casing, tubing, or packer. Injection operations shall not be resumed until the well has successfully demonstrated mechanical integrity and the Director has provided written approval to resume injection.

### **Section B. MECHANICAL INTEGRITY**

The Permittee is required to ensure each injection well maintains mechanical integrity at all times. The Director, by written notice, may require the Permittee to comply with a schedule describing when mechanical integrity demonstrations shall be made.

An injection well has mechanical integrity if:

- (a) There is no significant leak in the casing, tubing, or packer (Part I); and
- (b) There is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore (Part II).

### **1. Demonstration of Mechanical Integrity (MI).**

The operator shall demonstrate MI prior to commencing injection and periodically thereafter. Well-specific conditions dictate the methods and the frequency for demonstrating MI and are discussed in the Statement of Basis. The logs and tests are designed to demonstrate both internal (Part I) and external (Part II) MI as described above. The conditions present at this well site warrant the methods and frequency required in Appendix B of this Permit.

In addition to these regularly scheduled demonstrations of MI, the operator shall demonstrate internal (Part I) MI after any workover which affects the tubing, packer or casing.

The Director may require additional or alternative tests if the results presented by the operator are not satisfactory to the Director to demonstrate there is no movement of fluid into or between USDWs resulting from injection activity. Results of MI tests shall be submitted to the Director as soon as possible but no later than sixty (60) days after the test is complete.

### **2. Mechanical Integrity Test Methods and Criteria**

EPA-approved methods shall be used to demonstrate mechanical integrity. Ground Water Section Guidance No. 34 "Cement Bond Logging Techniques and Interpretation", Ground Water Section Guidance No. 37, "Demonstrating Part II (External) Mechanical Integrity for a Class II injection well permit", and Ground Water Section Guidance No. 39, "Pressure Testing Injection Wells for Part I (Internal) Mechanical Integrity" are available from EPA and will be provided upon request.

The Director may stipulate specific test methods and criteria best suited for a specific well construction and injection operation.

### **3. Notification Prior to Testing.**

The Permittee shall notify the Director at least 30 days prior to any scheduled mechanical integrity test. The Director may allow a shorter notification period if it would be sufficient to enable EPA to witness the mechanical integrity test. Notification may be in the form of a yearly or quarterly schedule of planned mechanical integrity tests, or it may be on an individual basis.

### **4. Loss of Mechanical Integrity.**

If the well fails to demonstrate mechanical integrity during a test, or a loss of mechanical integrity becomes evident during operation (such as presence of pressure in the TCA, water flowing at the surface, etc.), the Permittee shall notify the Director within 24 hours (see Part III Section E Paragraph 11(e) of this Permit) and the well shall be shut-in within 48 hours unless the Director requires immediate shut-in.

Within five days, the Permittee shall submit a follow-up written report that documents test results, repairs undertaken or a proposed remedial action plan.

Injection operations shall not be resumed until after the well has successfully been repaired and demonstrated mechanical integrity, and the Director has provided approval to resume injection.

## **Section C. WELL OPERATION**

**INJECTION BETWEEN THE OUTERMOST CASING PROTECTING UNDERGROUND SOURCES OF DRINKING WATER AND THE WELL BORE IS PROHIBITED.**

Injection is approved under the following conditions:

### **1. Requirements Prior to Commencing Injection.**

Well injection, including for new wells authorized by an Area Permit under 40 CFR 144.33 (c), may commence only after all well construction and pre-injection requirements herein have been met and approved. The Permittee may not commence injection until construction is complete, and

- (a) The Permittee has submitted to the Director a notice of completion of construction and a completed EPA Form 7520-10 or 7520-12; all applicable logging and testing requirements of this Permit (see APPENDIX B) have been fulfilled and the records submitted to the Director; mechanical integrity pursuant to 40 CFR 146.8 and Part II Section B of this Permit has been demonstrated; and
  - (i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the Permit; or
  - (ii) The Permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in Paragraph 1a, in which case prior inspection or review is waived and the Permittee may commence injection.

### **2. Injection Interval.**

Injection is permitted only within the approved injection interval, listed in APPENDIX C. Additional individual injection perforations may be added provided that they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A, Paragraph 6.

### **3. Injection Pressure Limitation**

- (a) The permitted Maximum Allowable Injection Pressure (MAIP), measured at the wellhead, is found in APPENDIX C. Injection pressure shall not exceed the amount the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDWs. In no case shall injection pressure cause the movement of injection or formation fluids into a USDW.
- (b) The Permittee may request a change of the MAIP, or the MAIP may be increased or decreased by the Director in order to ensure that the requirements in Paragraph (a) above are fulfilled. The Permittee may be required to conduct a step rate injection test or other suitable test to provide information for determining the fracture pressure of the injection zone. Change of the permitted MAIP by the Director shall be by modification of this Permit and APPENDIX C.

#### **4. Injection Volume Limitation.**

Injection volume is limited to the total volume specified in APPENDIX C.

#### **5. Injection Fluid Limitation.**

Injected fluids are limited to those identified in 40 CFR 144.6(b)(2) as fluids used for enhanced recovery of oil or natural gas, including those which are brought to the surface in connection with conventional oil or natural gas production that may be commingled with waste waters from gas plants which are an integral part of production operations unless those waters are classified as a hazardous waste at the time of injection, pursuant to 40 CFR 144.6(b). Non-exempt wastes, including unused fracturing fluids or acids, gas plant cooling tower cleaning wastes, service wastes and vacuum truck wastes, are NOT approved for injection. This well is NOT approved for commercial brine injection, industrial waste fluid disposal or injection of hazardous waste as defined by CFR 40 Part 261. The Permittee shall provide a listing of the sources of injected fluids in accordance with the reporting requirements in Part II Section D Paragraph 4 and APPENDIX D of this Permit.

#### **6. Tubing-Casing Annulus (TCA)**

The tubing-casing annulus (TCA) shall be filled with water treated with a corrosion inhibitor, or other fluid approved by the Director. The TCA valve shall remain closed during normal operating conditions and the TCA pressure shall be maintained at zero (0) psi.

If TCA pressure cannot be maintained at zero (0) psi, the Permittee shall follow the procedures in Ground Water Section Guidance No. 35 "Procedures to follow when excessive annular pressure is observed on a well."

### **Section D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS**

#### **1. Monitoring Parameters, Frequency, Records and Reports.**

Monitoring parameters are specified in APPENDIX D. Pressure monitoring recordings shall be taken at the wellhead. The listed parameters are to be monitored, recorded and reported at the frequency indicated in APPENDIX D even during periods when the well is not operating.

Monitoring records must include:

- (a) the date, time, exact place and the results of the observation, sampling, measurement, or analysis, and;
- (b) the name of the individual(s) who performed the observation, sampling, measurement, or analysis, and;
- (c) the analytical techniques or methods used for analysis.

#### **2. Monitoring Methods.**

- (a) Monitoring observations, measurements, samples, etc. taken for the purpose of complying with these requirements shall be representative of the activity or condition being monitored.

- (b) Methods used to monitor the nature of the injected fluids must comply with analytical methods cited and described in Table 1 of 40 CFR 136.3 or Appendix III of 40 CFR 261, or by other methods that have been approved in writing by the Director.
- (c) Injection pressure, annulus pressure, injection rate, and cumulative injected volumes shall be observed and recorded at the wellhead under normal operating conditions, and all parameters shall be observed simultaneously to provide a clear depiction of well operation.
- (d) Pressures are to be measured in pounds per square inch (psi).
- (e) Fluid volumes are to be measured in standard oil field barrels (bbl).
- (f) Fluid rates are to be measured in barrels per day (bbl/day).

### **3. Records Retention.**

- (a) Records of calibration and maintenance, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained for a period of AT LEAST THREE (3) YEARS from the date of the sample, measurement, report, or application. This period may be extended anytime prior to its expiration by request of the Director.
- (b) Records of the nature and composition of all injected fluids must be retained until three (3) years after the completion of any plugging and abandonment (P&A) procedures specified under 40 CFR 144.52(a)(6) or under Part 146 Subpart G, as appropriate. The Director may require the Permittee to deliver the records to the Director at the conclusion of the retention period. The Permittee shall continue to retain the records after the three (3) year retention period unless the Permittee delivers the records to the Director or obtains written approval from the Director to discard the records.
- (c) The Permittee shall retain records at the location designated in APPENDIX D.

### **4. Annual Reports.**

Whether the well is operating or not, the Permittee shall submit an Annual Report to the Director that summarizes the results of the monitoring required by Part II Section D and APPENDIX D.

The first Annual Report shall cover the period from the effective date of the Permit through December 31 of that year. Subsequent Annual Reports shall cover the period from January 1 through December 31 of the reporting year. Annual Reports shall be submitted by February 15 of the year following data collection. EPA Form 7520-11 may be copied and shall be used to submit the Annual Report, however, the monitoring requirements specified in this Permit are mandatory even if EPA Form 7520-11 indicates otherwise.

## **Section E. PLUGGING AND ABANDONMENT**

**1. Notification of Well Abandonment, Conversion or Closure.**

The Permittee shall notify the Director in writing at least forty-five (45) days prior to: 1) plugging and abandoning an injection well, 2) converting to a non-injection well, and 3) in the case of an Area Permit, before closure of the project.

**2. Well Plugging Requirements**

Prior to abandonment, the injection well shall be plugged with cement in a manner which prevents the movement of fluids into or between underground sources of drinking water. Prior to placement of the cement plug(s) the well shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method prescribed by the Director. The well shall be plugged in accordance with the approved plugging and abandonment plan and with 40 CFR 146.10.

**3. Approved Plugging and Abandonment Plan.**

The approved plugging and abandonment plan is incorporated into this Permit as APPENDIX E. Changes to the approved plugging and abandonment plan must be approved by the Director prior to beginning plugging operations. The Director also may require revision of the approved plugging and abandonment plan at any time prior to plugging the well.

**4. Forty Five (45) Day Notice of Plugging and Abandonment.**

The Permittee shall notify the Director at least forty-five (45) days prior to plugging and abandoning a well and provide notice of any anticipated change to the approved plugging and abandonment plan.

**5. Plugging and Abandonment Report.**

Within sixty (60) days after plugging a well, the Permittee shall submit a report (EPA Form 7520-13) to the Director. The plugging report shall be certified as accurate by the person who performed the plugging operation. Such report shall consist of either:

- (a) A statement that the well was plugged in accordance with the approved plugging and abandonment plan; or
- (b) Where actual plugging differed from the approved plugging and abandonment plan, an updated version of the plan, on the form supplied by the Director, specifying the differences.

**6. Inactive Wells.**

After any period of two years during which there is no injection the Permittee shall plug and abandon the well in accordance with Part II Section E Paragraph 2 of this Permit unless the Permittee:

- (a) Provides written notice to the Director;
- (b) Describes the actions or procedures the Permittee will take to ensure that the well will not endanger USDWs during the period of inactivity. These actions and procedures shall include compliance with mechanical integrity demonstration, Financial Responsibility and all other permit requirements designed to protect USDWs; and

- (c) Receives written notice by the Director temporarily waiving plugging and abandonment requirements.

## **PART III. CONDITIONS APPLICABLE TO ALL PERMITS**

### **Section A. EFFECT OF PERMIT**

The Permittee is allowed to engage in underground injection in accordance with the conditions of this Permit. The Permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any other activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR 142 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized by this Permit or by rule is prohibited. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this Permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment, for any imminent and substantial endangerment to human health or the environment, nor does it serve as a shield to the Permittee's independent obligation to comply with all UIC regulations. Nothing in this Permit relieves the Permittee of any duties under applicable regulations.

### **Section B. CHANGES TO PERMIT CONDITIONS**

#### ***1. Modification, Reissuance, or Termination.***

The Director may, for cause or upon a request from the Permittee, modify, revoke and reissue, or terminate this Permit in accordance with 40 CFR 124.5, 144.12, 144.39, and 144.40. Also, this Permit is subject to minor modification for causes as specified in 40 CFR 144.41. The filing of a request for modification, revocation and reissuance, termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any condition of this Permit.

#### ***2. Conversions.***

The Director may, for cause or upon a written request from the Permittee, allow conversion of the well from a Class II injection well to a non-Class II well. Conversion may not proceed until the Permittee receives written approval from the Director. Conditions of such conversion may include but are not limited to, approval of the proposed well rework, follow up demonstration of mechanical integrity, well-specific monitoring and reporting following the conversion, and demonstration of practical use of the converted configuration.

#### ***3. Transfer of Permit.***

Under 40 CFR 144.38, this Permit is transferable provided the current Permittee notifies the Director at least thirty (30) days in advance of the proposed transfer date (EPA Form 7520-7) and provides a written agreement between the existing and new Permittees containing a specific date for transfer of Permit responsibility, coverage and liability between them. The notice shall adequately demonstrate that the financial responsibility requirements of 40 CFR 144.52(a)(7) will be met by the new Permittee. The Director may require modification or revocation and reissuance of the Permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act; in some cases, modification or revocation and reissuance is mandatory.

#### **4. Permittee Change of Address.**

Upon the Permittee's change of address, or whenever the operator changes the address where monitoring records are kept, the Permittee must provide written notice to the Director within 30 days.

#### **5. Construction Changes, Workovers, Logging and Testing Data**

The Permittee shall give advance notice to the Director, and shall obtain the Director's written approval prior to any physical alterations or additions to the permitted facility. Alterations or workovers shall meet all conditions as set forth in this permit. The Permittee shall record any changes to the well construction on a Well Rework Record (EPA Form 7520-12), and shall provide this and any other record of well workovers, logging, or test data to EPA within sixty (60) days of completion of the activity.

Following the completion of any well workovers or alterations which affect the casing, tubing, or packer, a successful demonstration of mechanical integrity (Part III, Section F of this permit) shall be made, and written authorization from the Director received, prior to resuming injection activities.

### **Section C. SEVERABILITY**

The Provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.

### **Section D. CONFIDENTIALITY**

In accordance with 40 CFR Part 2 and 40 CFR 144.5, information submitted to EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

- The name and address of the Permittee, and
- information which deals with the existence, absence or level of contaminants in drinking water.

### **Section E. GENERAL PERMIT REQUIREMENTS**

#### **1. Duty to Comply.**

The Permittee must comply with all conditions of this Permit. Any noncompliance constitutes a violation of the Safe Drinking Water Act (SDWA) and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the Permittee need not comply with the provisions of this Permit to the extent and for the duration such noncompliance is authorized in an emergency permit under 40 CFR 144.34. All violations of the SDWA may subject the Permittee to penalties and/or criminal prosecution as specified in Section 1423 of the SDWA.

**2. Duty to Reapply.**

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, under 40 CFR 144.37 the Permittee must apply for a new permit prior to the expiration date.

**3. Need to Halt or Reduce Activity Not a Defense.**

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

**4. Duty to Mitigate.**

The Permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit.

**5. Proper Operation and Maintenance.**

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

**6. Permit Actions.**

This Permit may be modified, revoked and reissued or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

**7. Property Rights.**

This Permit does not convey any property rights of any sort, or any exclusive privilege.

**8. Duty to Provide Information.**

The Permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this Permit. The Permittee is required to submit any information required by this Permit or by the Director to the mailing address designated in writing by the Director.

**9. Inspection and Entry.**

The Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and,
- (d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

#### **10. Signatory Requirements.**

All applications, reports or other information submitted to the Director shall be signed and certified according to 40 CFR 144.32. This section explains the requirements for persons duly authorized to sign documents, and provides wording for required certification.

#### **11. Reporting Requirements.**

- (a) Planned changes. The Permittee shall give notice to the Director as soon as possible of any planned changes, physical alterations or additions to the permitted facility, and prior to commencing such changes.
- (b) Anticipated noncompliance. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) Monitoring Reports. Monitoring results shall be reported at the intervals specified in this Permit.
- (d) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 30 days following each schedule date.
- (e) Twenty-four hour reporting. The Permittee shall report to the Director any noncompliance which may endanger human health or the environment, including:
  - (i) Any monitoring or other information which indicates that any contaminant may cause endangerment to a USDW; or
  - (ii) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.

Information shall be provided, either directly or by leaving a message, within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning (800) 227-8917 and requesting EPA Region VIII UIC Program Compliance and Technical Enforcement Director, or by contacting the EPA Region VIII Emergency Operations Center at (303) 293-1788.

In addition, a follow up written report shall be provided to the Director within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

- (f) Oil Spill and Chemical Release Reporting: The Permittee shall comply with all reporting requirements related to the occurrence of oil spills and chemical releases by contacting the National Response Center (NRC) at (800) 424-8802, (202) 267-2675, or through the NRC website <http://www.nrc.uscg.mil/index.htm>.
- (g) Other Noncompliance. The Permittee shall report all instances of noncompliance not reported under paragraphs Part III, Section E Paragraph 11(b) or Section E, Paragraph 11(e) at the time the monitoring reports are submitted. The reports shall contain the information listed in Paragraph 11(e) of this Section.
- (h) Other information. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall promptly submit such facts or information to the Director.

## **Section F. FINANCIAL RESPONSIBILITY**

### ***1. Method of Providing Financial Responsibility.***

The Permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close, plug, and abandon the underground injection well(s). No substitution of a demonstration of financial responsibility shall become effective until the Permittee receives written notification from the Director that the alternative demonstration of financial responsibility is acceptable. The Director may, on a periodic basis, require the holder of a permit to revise the estimate of the resources needed to plug and abandon the well to reflect changes in such costs and may require the Permittee to provide a revised demonstration of financial responsibility.

### ***2. Insolvency.***

In the event of:

- (a) the bankruptcy of the trustee or issuing institution of the financial mechanism; or
- (b) suspension or revocation of the authority of the trustee institution to act as trustee; or

- (c) the institution issuing the financial mechanism losing its authority to issue such an instrument

the Permittee must notify the Director in writing, within ten (10) business days, and the Permittee must establish other financial assurance or liability coverage acceptable to the Director within sixty (60) days after any event specified in (a), (b), or (c) above.

The Permittee must also notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor, if named as debtor of a corporate guarantee, must make such a notification as required under the terms of the guarantee.

## APPENDIX A

### WELL CONSTRUCTION REQUIREMENTS

See diagram.

The Federal No. 9-31-8-18 was drilled to a total depth of 6190 (KB) feet in the Basal Carbonate Member of the Green River Formation.

Surface casing (8-5/8 inch) was set at a depth of 312 feet in a 12-1/4 inch hole using 150 sacks of Class "G" cement which was circulated to the surface.

Production casing (5-1/2 inch) was set at a depth of 6176.86 feet (KB) in a 7-7/8 inch hole with 320 sacks of Premium Lite II and 400 sacks of 50/50 poz mix. This well construction is considered adequate to protect USDWs.

The EPA calculates the top of cement as 1524 feet from the surface.

The schematic diagram shows the proposed current injection perforations in the Garden Gulch and Douglas Creek Members of the Green River Formation. Additional perforations may be added at a later time between the depths of 3926 feet and the top of the Wasatch Formation (Estimated to be 6211 feet) provided the operator first notifies the Director and later submits an updated well completion report (EPA Form 7520-12) and schematic diagram.

The packer will be required to be set no higher than 100 feet above the top perforation.

# Federal 9-31-8-18

Spud Date: 11/20/03  
Put on Production: 12/16/03  
GL: 4979' KB: 4991'

## SURFACE CASING

CSG SIZE: 8-5/8"  
GRADE: J-55  
WEIGHT: 24#  
LENGTH: 7 jts. (302.42')  
DEPTH LANDED: 312.42' KB *Base (130W) < 250'*  
HOLE SIZE: 12-1/4"  
CEMENT DATA: 150 sxs Class "G" crnt, est 4 bbls crnt to surf.

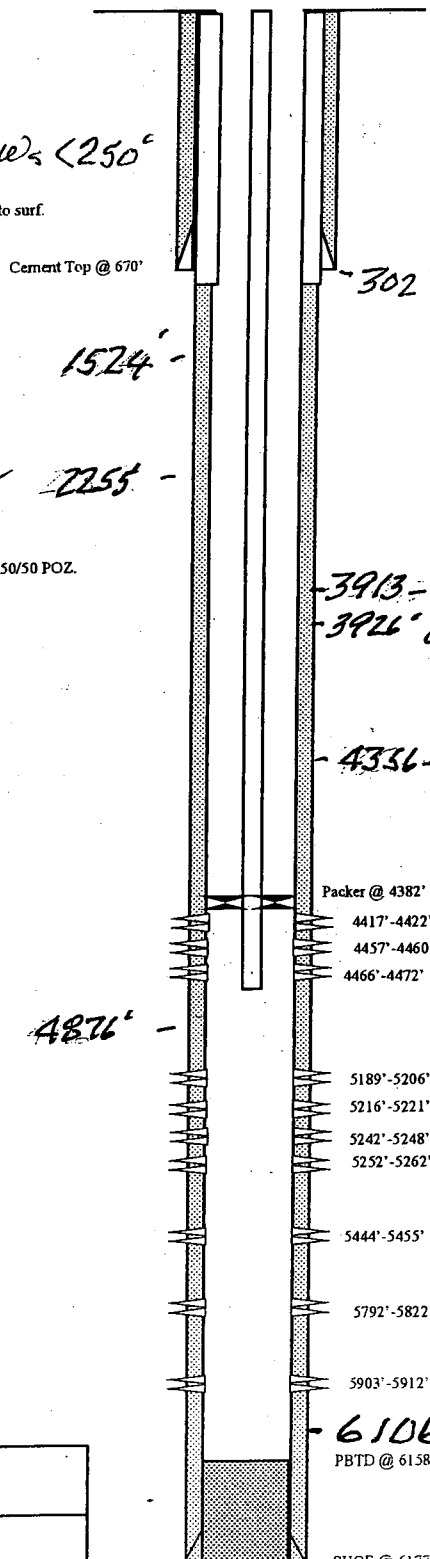
## PRODUCTION CASING

CSG SIZE: 5-1/2"  
GRADE: J-55  
WEIGHT: 15.5#  
LENGTH: 138 jts. (6178.86') *Green River 2255'*  
DEPTH LANDED: 6176.86' KB  
HOLE SIZE: 7-7/8"  
CEMENT DATA: 320 sxs Prem. Lite II mixed & 400 sxs 50/50 POZ.  
CEMENT TOP AT: 670'

## TUBING

SIZE/GRADE/WT.: 2-7/8" / J-55 / 6.5#  
NO. OF JOINTS: 181 jts (5854.74')  
TUBING ANCHOR: 5866.74' KB  
NO. OF JOINTS: 1 jts (32.28')  
SEATING NIPPLE: 2-7/8" (1.10')  
SN LANDED AT: 5901.82' KB  
NO. OF JOINTS: 2 jts (64.73')  
TOTAL STRING LENGTH: EOT @ 5968.10' W/12' KB

## Proposed Injection Wellbore Diagram



Initial Production: 64 BOPD,  
112 MCFD, 16 BWPD

## FRAC JOB

12/10/03 5903'-5912' **Frac CP3 sands as follows:**  
29,872# 20/40 sand in 340 bbls Viking I-25 fluid. Treated @ avg press of 1825 psi w/avg rate of 24.3 BPM. ISIP 1750 psi. Calc flush: 5901 gal. Actual flush: 5880 gal.

12/10/03 5792'-5822' **Frac CP1 sands as follows:**  
100,090# 20/40 sand in 730 bbls Viking I-25 fluid. Treated @ avg press of 1620 psi w/avg rate of 24.5 BPM. ISIP 1620 psi. Calc flush: 5790 gal. Actual flush: 5754 gal.

12/10/03 5444'-5455' **Frac LODC sands as follows:**  
64,383# 20/40 sand in 517 bbls Viking I-25 fluid. Treated @ avg press of 2319 psi w/avg rate of 24.4 BPM. ISIP 2730 psi. Calc flush: 5442 gal. Actual flush: 5443 gal.

12/10/03 5189'-5262' **Frac B and A sands as follows:**  
139,662# 20/40 sand in 951 bbls Viking I-25 fluid. Treated @ avg press of 1550 psi w/avg rate of 24.7 BPM. ISIP 1570 psi. Calc flush: 5187 gal. Actual flush: 5166 gal.

12/10/03 4417'-4472' **Frac GB sands as follows:**  
40,565# 20/40 sand in 360 bbls Viking I-25 fluid. Treated @ avg press of 2430 psi w/avg rate of 24.5 BPM. ISIP 2300 psi. Calc flush: 4415 gal. Actual flush: 4410 gal.

## PERFORATION RECORD

Date	Depth Range	Tool Joint	Holes
12/9/03	5903'-5912'	4 JSPF	36 holes
12/10/03	5792'-5822'	2 JSPF	60 holes
12/10/03	5444'-5455'	4 JSPF	44 holes
12/10/03	5252'-5262'	2 JSPF	20 holes
12/10/03	5242'-5248'	2 JSPF	12 holes
12/10/03	5216'-5221'	2 JSPF	10 holes
12/10/03	5189'-5206'	2 JSPF	34 holes
12/10/03	4466'-4472'	4 JSPF	24 holes
12/10/03	4457'-4460'	4 JSPF	12 holes
12/10/03	4417'-4422'	4 JSPF	20 holes

NEWFIELD

Federal 9-31-8-18

2142' FSL & 744' FEL

NESE Section 31-T8S-R18E

Uintah Co, Utah

API #43-047-34931, Lease #UTU-74404

SHOE @ 6177'

TD @ 6190'

*Est. Wasatch @ 6211'*

## APPENDIX B

### LOGGING AND TESTING REQUIREMENTS

#### Logs.

Logs will be conducted according to current UIC guidance. It is the responsibility of the permittee to obtain and use guidance prior to conducting any well logging required as a condition of this permit.

#### NO LOGGING REQUIREMENTS

#### Tests.

Tests will be conducted according to current UIC guidance. It is the responsibility of the permittee to obtain and use guidance prior to conducting any well test required as a condition of this permit.

<b>WELL NAME:</b> Federal 9-31-8-18	
<b>TYPE OF TEST</b>	<b>DATE DUE</b>
Step Rate Test	Within 180 days following commencement of injection.
Standard Annulus Pressure	Prior to authorization to inject and and least once every five (5) years thereafter.
Pore Pressure	Prior to authorization to inject.
Radioactive Tracer Survey (2)	Within 180 days following commencement of injection and at least once every five (5) years thereafter.

## APPENDIX C

### OPERATING REQUIREMENTS

#### MAXIMUM ALLOWABLE INJECTION PRESSURE:

Maximum Allowable Injection Pressure (MAIP) as measured at the surface shall not exceed the pressure(s) listed below.

WELL NAME	MAXIMUM ALLOWED INJECTION PRESSURE (psi)
	ZONE 1 (Upper)
Federal 9-31-8-18	1,315

#### INJECTION INTERVAL(S):

Injection is permitted only within the approved injection interval listed below. Injection perforations may be altered provided they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A, Paragraph 6. Specific injection perforations can be found in Appendix A.

WELL NAME: Federal 9-31-8-18			
FORMATION NAME	APPROVED INJECTION INTERVAL (KB, ft)		FRACTURE GRADIENT (psi/ft)
	TOP	BOTTOM	
Green River	3,926.00 - 6,211.00		0.733

#### ANNULUS PRESSURE:

The annulus pressure shall be maintained at zero (0) psi as measured at the wellhead. If this pressure cannot be maintained, the Permittee shall follow the procedures listed under Part II, Section C. 6. of this permit.

#### MAXIMUM INJECTION VOLUME:

There is no limitation on the number of barrels per day (bbls/day) of water that shall be injected into this well, provided further that in no case shall injection pressure exceed that limit shown in Appendix C.

## APPENDIX D

### MONITORING AND REPORTING PARAMETERS

This is a listing of the parameters required to be observed, recorded, and reported. Refer to the permit Part II, Section D, for detailed requirements for observing, recording, and reporting these parameters.

OBSERVE MONTHLY AND RECORD AT LEAST ONCE EVERY THIRTY DAYS	
OBSERVE AND RECORD	Injection pressure (psig)
	Annulus pressure(s) (psig)
	Injection rate (bbl/day)
	Fluid volume injected since the well began injecting (bbls)

ANNUALLY	
ANALYZE	Injected fluid total dissolved solids (mg/l)
	Injected fluid specific gravity
	Injected fluid specific conductivity
	Injected fluid pH

ANNUALLY	
REPORT	Each month's maximum and averaged injection pressures (psig)
	Each month's maximum and averaged annulus pressure(s) (psig)
	Each month's averaged injection rate (bbl/day)
	Fluid volume injected since the well began injecting (bbl)
	Written results of annual injected fluid analysis
	Sources of all fluids injected during the year

Records of all monitoring activities must be retained and made available for inspection at the following location:

**Newfield production Company**  
**1401 seventeenth Street - Suite 1000**  
**Denver, CO 80202**

## APPENDIX E

### PLUGGING AND ABANDONMENT REQUIREMENTS

See diagram.

All cement plugs will be set with tubing.

9.2 ppg plugging gel, or fresh water weighted with bentonite or treated brine will be placed between all cement plugs.

The following Plugging and Abandonment Plan, as proposed by the permittee, is predicated on the permittee not revising the injection perforations cited on the schematic diagram of well construction/conversion. Should the uppermost perforations (4417 feet to 4422 feet) be modified in construction, the EPA will modify the P&A Plan accordingly.

PLUG NO. 1: A Cast Iron Bridge Plug (CIBP) at 4322 feet with 100 feet of Class "G" cement on CIBP.

PLUG NO. 2: A 300-foot Class "G" cement plug from 2000 feet to 2300 feet. This plug will cover both a water zone and the top of the Green River Formation.

PLUG NO. 3: Perforate 362 feet with JSPF. Circulate Class "G" cement down the 5-1/2 inch casing and up the 5-1/2 inch X 8-5/8 inch annulus.

PLUG NO. 4: A Class "G" cement plug on the backside of the 5-1/2 inch casing from the surface to a depth of 365 feet.

## Federal 9-31-8-18

Spud Date: 11/20/03  
Put on Production: 12/16/03

GL: 4979' KB: 4991'

SURFACE CASING

CSG SIZE: 8-5/8"

GRADE: J-55

WEIGHT: 24#

LENGTH: 7 jts. (302.42')

DEPTH LANDED: 312.42' KB

HOLE SIZE: 12-1/4"

CEMENT DATA: 150 sxs Class "G" cmt, est 4 bbls cmt to surf.

Proposed P&A  
Wellbore Diagram

PRODUCTION CASING

CSG SIZE: 5-1/2"

GRADE: J-55

WEIGHT: 15.5#

LENGTH: 138 jts. (6178.86')

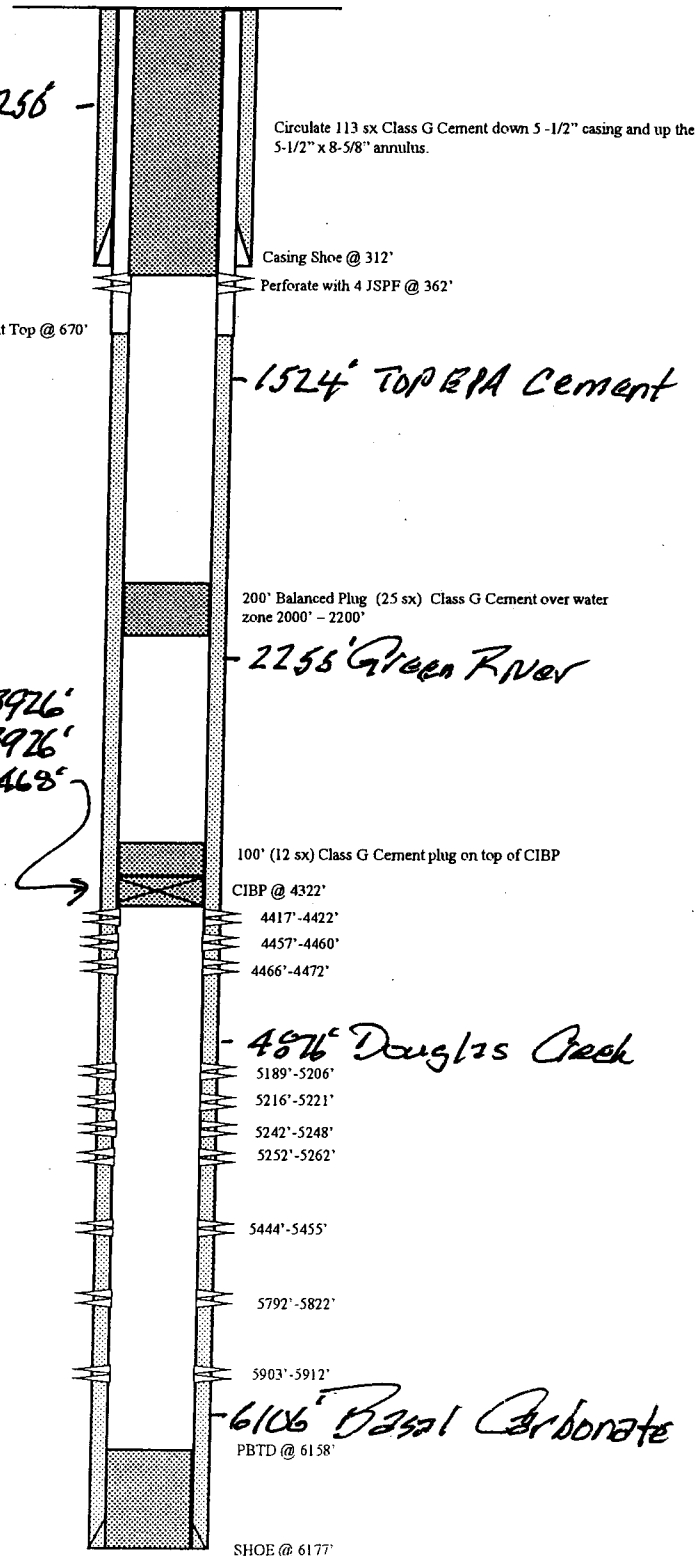
DEPTH LANDED: 6176.86' KB

HOLE SIZE: 7-7/8"

CEMENT DATA: 320 sxs Prem. Lite II mixed & 400 sxs 50/50 POZ.

CEMENT TOP AT: 670'

Confining Zone 3913'-3926'  
Garden Gulch 3926'  
80% Bond Cement 4356'-4468'



<b>NEWFIELD</b>
<b>Federal 9-31-8-18</b>
2142' FSL & 744' FEL
NESE Section 31-T8S-R18E
Uintah Co, Utah
API #43-047-34931; Lease #UTU-74404

SHOE @ 6177'

TD @ 6190'

Est. Wasatch 6211'

## **APPENDIX F**

### **CORRECTIVE ACTION REQUIREMENTS**

No corrective action is deemed necessary for this project.

# **STATEMENT OF BASIS**

**NEWFIELD PRODUCTION COMPANY  
FEDERAL 9-31-8-18  
UINTAH COUNTY, UT**

**EPA PERMIT NO. UT21024-06977**

***CONTACT:*** Emmett Schmitz  
U. S. Environmental Protection Agency  
Ground Water Program, 8P-W-GW  
999 18th Street, Suite 300  
Denver, Colorado 80202-2466  
Telephone: 1-800-227-8917 ext. 6174

This STATEMENT OF BASIS gives the derivation of site-specific UIC Permit conditions and reasons for them. Referenced sections and conditions correspond to sections and conditions in the Permit.

UIC Permits specify the conditions and requirements for construction, operation, monitoring and reporting, and plugging of injection wells to prevent the movement of fluids into underground sources of drinking water (USDWs). Under 40 CFR 144 Subpart D, certain conditions apply to all UIC Permits and may be incorporated either expressly or by reference. General Permit conditions for which content is mandatory and not subject to site-specific differences (40 CFR Parts 144, 146 and 147) are not discussed in this document.

Upon the Effective Date when issued, the Permit authorizes the conversion and operation of a "new" injection well or wells governed by the conditions specified in the Permit. The Permit is issued for the operating life of the injection well or project unless terminated for reasonable cause under 40 CFR 144.39, 144.40 and 144.41. The Permit is subject to EPA review at least once every five (5) years to determine if action is required under 40 CFR 144.36(a).

## PART I. General Information and Description of Facility

Newfield Production Company  
1401 Seventeenth Street  
Suite 1000  
Denver, CO 80202

on

September 26, 2005

submitted an application for an Underground Injection Control (UIC) Program Permit or Permit Modification for the following injection well or wells:

Federal 9-31-8-18  
2142' FSL & 744' FEL, NESE S31, T8S, R18E  
Uintah County, UT

Regulations specific to Uintah-Ouray Indian Reservation injection wells are found at 40 CFR 147 Subpart TT.

The application, including the required information and data necessary to issue or modify a UIC Permit in accordance with 40 CFR Parts 144, 146 and 147, was reviewed and determined by EPA to be complete.

The Permit will expire upon delegation of primary enforcement responsibility (primacy) for applicable portions of the UIC Program to the Ute Indian Tribe or the State of Utah unless the delegated agency has the authority and chooses to adopt and enforce this Permit as a Tribal or State Permit.

TABLE 1.1 shows the status of the well or wells as "New", "Existing", or "Conversion" and for Existing shows the original date of injection operation. Well authorization "by rule" under 40 CFR Part 144 Subpart C expires automatically on the Effective Date of an issued UIC Permit.

The Federal 9-31-8-18 is currently an active Green River Formation oil well. The applicant intends to convert the Federal 9-31-8-18 to an injection well to support existing Green River Formation enhanced oil recovery operations.

**TABLE 1.1**  
**WELL STATUS / DATE OF OPERATION**

**CONVERSION WELLS**

Well Name	Well Status	Date of Operation
Federal 9-31-8-18	Conversion	N/A

## Hydrogeologic Setting

The proposed injection well is located in the Newfield Production Company Greater Monument Butte area near the center of the broad, gently northward dipping south flank of the Uinta Basin. The beds dip at about 200'/mile, and there are no known surface folds or faults in the field. The lower 600' to 800' of the Uinta Formation, generally consisting of 5' to 20' thick brown lenticular fluvial sandstone and interbedded varicolored shales, outcrops at the surface in this area. The Uinta is underlain by the Green River Formation which consists of lake (lacustrine) margin sandstones, limestone and shale beds that were deposited along the edges and on the broad level floor of Lake Uinta as it expanded and contracted through time. Underlying the Green River Formation is the Wasatch Formation, which is approximately 2400' thick in this area and consists of red alluvial shales and siltstone with scattered lenticular sandstones usually 10' to 50' thick. Below the Wasatch Formation is the Mesaverde Formation; a series of interbedded continental deposits of shale, sandstone, and coal. Water samples from Mesaverde sands in the nearby Natural Buttes Unit yield highly saline water.

The Uinta Basin is a topographic and structural trough encompassing an area of more than 9300 square mi (14,900 km ) in northeast Utah. The basin is sharply asymmetrical, with a steep north flank bounded by the east-west-trending Uinta Mountains, and a gently dipping south flank. The Uinta Basin formed in Paleocene to Eocene time, creating a large area of internal drainage which was filled by ancestral Lake Uinta. Deposition in and around Lake Uinta consisted of open- to marginal-lacustrine sediments that make up the Green River Formation. Alluvial red-bed deposits that are laterally equivalent to and intertongue with the Green River make up the Colton Formation (Wasatch). More than 450 million barrels of oil (63 MT) have been produced from the Green River and Wasatch Formations in the Uinta Basin. The southern shore of Lake Uinta was very broad and flat, which allowed large transgressive and regressive shifts in the shoreline in response to climatic and tectonic-induced rise and fall of the lake. The cyclic nature of Green River deposition in the southern shore area resulted in numerous stacked deltaic deposits. Distributary-mouth bars, distributary channels, and near-shore bars are the primary producing sandstone reservoirs in the area (Ref: "Reservoir Characterization of the Lower Green River Formation, Southwest Uinta Basin, Utah Biannual Technical Progress Report 4/1/99 - 9/30/99", by C. D. Morgan, Program Manager, November 1999, Contract DE-AC26-98BC15103). The Tertiary Duchesne River Formation alluvium generally is present at the surface in this area.

Throughout the current Newfield Production Company area of enhanced recovery injection activity, i.e., T8-9S - R15-19E, Green River Formation water analyses generally exhibit total dissolved (TDS) content well in excess of 10,000 mg/l. A few recent applications for well conversion to enhanced recovery injection contain Green River water analyses with TDS approximating 10,000 mg/l. The State of Utah-Natural Resources ascribes low TDS values to several possibilities involving dilution of Green River water with high TDS values, e.g., recharge of the Green River Formation via Green River Formation outcrop on the Book Cliffs/Roan Cliffs; injection of very low TDS Johnson Water District Reservoir source water; and percolation of surface water via deep-seated Gilsonite veins penetrating lower Green River Members.

### Geologic Setting (TABLE 2.1)

**TABLE 2.1**  
**GEOLOGIC SETTING**  
**Federal 9-31-8-18**

Formation Name	Top (ft)	Base (ft)	TDS (mg/l)	Lithology
Green River	3,926.00	6,211.00	11,239.00	Interbedded sequences of lacustrine carbonate-sand-shale, and fluvialite sand and shale.

**Proposed Injection Zone(s) (TABLE 2.2)**

An injection zone is a geological formation, group of formations, or part of a formation that receives fluids through a well. The proposed injection zones are listed in TABLE 2.2.

Injection will occur into an injection zone that is separated from USDWs by a confining zone which is free of known open faults or fractures within the Area of Review.

The approved injection interval for enhanced recovery injection is identified as the gross interval between the top of the Garden Gulch Member at 3926 feet and the top of the Wasatch Formation, estimated to be 6211 feet.

**TABLE 2.2**  
**INJECTION ZONES**  
**Federal 9-31-8-18**

Formation Name	Top (ft)	Base (ft)	TDS (mg/l)	Fracture Gradient (psi/ft)	Porosity	Exempted?*
Green River	3,926.00	6,211.00	11,239.00	0.733		N/A

\* C - Currently Exempted  
E - Previously Exempted  
P - Proposed Exemption  
N/A - Not Applicable

**Confining Zone(s) (TABLE 2.3)**

A confining zone is a geological formation, part of a formation, or a group of formations that limits fluid movement above the injection zone. The confining zone or zones are listed in TABLE 2.3.

The Confining Zone is identified as a thirteen (13) foot interval of the Green River Formation from 3913 feet to 3926 feet.

**TABLE 2.3**  
**CONFINING ZONES**  
**Federal 9-31-8-18**

Formation Name	Formation Lithology	Top (ft)	Base (ft)
Green River	Shale	3,913.00	3,926.00

**Underground Sources of Drinking Water (USDWs) (TABLE 2.4)**

Aquifers or the portions thereof which contain less than 10,000 mg/l total dissolved solids (TDS) and are being or could in the future be used as a source of drinking water are considered to be USDWs. The USDWs in the area of this facility are identified in TABLE 2.4.

The State of Utah "Water Wells and Springs", <http://NRWRT1.STATE.UT.US>, identifies no public water supply wells within the one-quarter (1/4) mile Area-of-Review (AOR) around the Federal 9-31-8-18.

Technical Publication No. 92: State of Utah, Department of Natural Resources, cites the base of Underground Sources of Drinking Water (USDW) in the Uinta Formation, approximately 250 feet from the surface.

**TABLE 2.4**  
**UNDERGROUND SOURCES OF DRINKING WATER (USDW)**  
**Federal 9-31-8-18**

Formation Name	Formation Lithology	Top (ft)	Base (ft)	TDS (mg/l)
Uinta	Fluvial sand and shale	0.00	250.00	< 10,000.00

## PART III. Well Construction (40 CFR 146.22)

The Federal No. 9-31-8-18 was drilled to a total depth of 6190 (KB) feet in the Basal Carbonate Member of the Green River Formation.

Surface casing (8-5/8 inch) was set at a depth of 312 feet in a 12-1/4 inch hole using 150 sacks of Class "G" cement which was circulated to the surface.

Production casing (5-1/2 inch) was set at a depth of 6176.86 feet (KB) in a 7-7/8 inch hole with 320 sacks of Premium Lite II and 400 sacks of 50/50 poz mix. This well construction is considered adequate to protect USDW's.

The EPA calculates the top of cement as 1524 feet from the surface.

The schematic diagram shows the proposed current injection perforations in the Garden Gulch and Douglas Creek Members of the Green River Formation. Additional perforations may be added at a later time between the depths of 3926 feet and the top of the Wasatch Formation (Estimated to be 6211 feet) provided the operator first notifies the Director and later submits an updated well completion report (EPA Form 7520-12) and schematic diagram.

The packer will be required to be set no higher than 100 feet above the top perforation.

**TABLE 3.1**  
**WELL CONSTRUCTION REQUIREMENTS**  
**Federal 9-31-8-18**

Casing Type	Hole Size (in)	Casing Size (in)	Cased Interval (ft)	Cemented Interval (ft)
Production	7.88	5.50	0.00 - 6,176.86	1,524.00 - 6,176.86
Surface	12.25	8.63	0.00 - 312.42	0.00 - 312.42

The approved well completion plan will be incorporated into the Permit as APPENDIX A and will be binding on the Permittee. Modification of the approved plan is allowed under 40 CFR 144.52(a)(1) provided written approval is obtained from the Director prior to actual modification.

### Casing and Cementing (TABLE 3.1)

The construction plan for the well or wells proposed for conversion to an injection well was evaluated and determined to be in conformance with standard practices and guidelines that ensure well injection does not result in the movement of fluids into USDWs. Well construction and conversion details for the well or wells are shown in TABLE 3.1.

### Tubing and Packer

Injection tubing is required to be installed from a packer up to the surface inside the well casing. The packer will be set above the uppermost perforation. The tubing and packer are designed to prevent injection fluid from coming into contact with the outermost casing.

### Tubing-Casing Annulus (TCA)

The TCA allows the casing, tubing and packer to be pressure-tested periodically for mechanical integrity, and will allow for detection of leaks. The TCA will be filled with fresh water treated with a corrosion inhibitor or other fluid approved by the Director.

The tubing/casing annulus must be kept closed at all times so that it can be monitored as required under the conditions of the Permit.

### Monitoring Devices

The permittee will be required to install and maintain wellhead equipment that allows for monitoring pressures and providing access for sampling the injected fluid. Required equipment may include but is not limited to: 1) shut-off valves located at the wellhead on the injection tubing and on the TCA; 2) a flow meter that measures the cumulative volume of injected fluid; 3) fittings or pressure gauges attached to the injection tubing and the TCA for monitoring the injection and TCA pressure; and 4) a tap on the injection line, isolated by shut-off valves, for sampling the injected fluid.

All sampling and measurement taken for monitoring must be representative of the monitored activity.

## PART IV. Area of Review, Corrective Action Plan (40 CFR 144.55)

**TABLE 4.1  
AOR AND CORRECTIVE ACTION**

Well Name	Type	Status (Abandoned Y/N)	Total Depth (ft)	TOC Depth (ft)	CAP Required (Y/N)
Federal 10-31-8-18	Producer	No	6,214.00	1,678.00	No
Federal 8-31-8-18	Producer	No	6,289.00	1,523.00	No
Sundance No. 12-32-8-18	Producer	No	6,200.00	0.00	No

TABLE 4.1 lists the wells in the Area of Review ("AOR") and shows the well type, operating status, depth, top of casing cement ("TOC") and whether a Corrective Action Plan ("CAP") is required for the well.

### Area Of Review

Applicants for Class I, II (other than "existing" wells) or III injection well Permits are required to identify the location of all known wells within the injection well's Area of Review (AOR) which penetrate the injection zone, or in the case of Class II wells operating over the fracture pressure of the formation, all known wells within the area of review that penetrate formations which may be affected by increased pressure. Under 40 CFR 146.6 the AOR may be a fixed radius of not less than one quarter (1/4) mile or a calculated zone of endangering influence. For Area Permits, a fixed width of not less than one quarter (1/4) mile for the circumscribing area may be used.

### Corrective Action Plan

For wells in the AOR which are improperly sealed, completed, or abandoned, the applicant shall develop a Corrective Action Plan (CAP) consisting of the steps or modifications that are necessary

to prevent movement of fluid into USDWs.

The CAP will be incorporated into the Permit as APPENDIX F and become binding on the permittee.

TABLE 4.1 lists the wells in the AOR, and shows the well type, operating status, depth, top of casing cement and whether a CAP is required for this well.

## PART V. Well Operation Requirements (40 CFR 146.23)

**TABLE 5.1**  
**INJECTION ZONE PRESSURES**  
**Federal 9-31-8-18**

Formation Name	Depth Used to Calculate MAIP (ft)	Fracture Gradient (psi/ft)	Initial MAIP (psi)
Green River	4,417.00	0.733	1,315

### Approved Injection Fluid

The approved injection fluid is limited to Class II injection well fluids pursuant to 40 CFR § 144.6(b). For disposal wells injecting water brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production, the fluid may be commingled and the well used to inject other Class II wastes such as drilling fluids and spent well completion, treatment and stimulation fluid. Injection of non-exempt wastes, including unused fracturing fluids or acids, gas plant cooling tower cleaning wastes, service wastes and vacuum truck wastes, is prohibited.

The proposed injectate is a blend of source water from the Johnson Water District reservoir and produced water from the adjacent wells. The TDS of the injectate is 6316 ng/l.

### Injection Pressure Limitation

Injection pressure, measured at the wellhead, shall not exceed a maximum calculated to assure that the pressure used during injection does not initiate new fractures or propagate existing fractures in the confining zones adjacent to the USDWs.

The applicant submitted injection fluid density and injection zone data which was used to calculate a formation fracture pressure and to determine the maximum allowable injection pressure (MAIP), as measured at the surface, for this Permit,

TABLE 5.1 lists the fracture gradient for the injection zone and the approved MAIP, determined according to the following formula:

$$FP = [fg - (0.433 * sg)] * d$$

FP = formation fracture pressure (measured at surface)  
fg = fracture gradient (from submitted data or tests)  
sg = specific gravity (of injected fluid)

d = depth to top of injection zone (or top perforation)

### **Injection Volume Limitation**

Cumulative injected fluid volume limits are set to assure that injected fluids remain within the boundary of the exempted area. Cumulative injected fluid volume is limited when injection occurs into an aquifer that has been exempted from protection as a USDW.

There will be no restrictions on the cumulative volume of the authorized injectate into the approved injection interval, 3926 feet to the top of the Wasatch Formation which is estimated to be 6211 feet.

### **Mechanical Integrity (40 CFR 146.8)**

An injection well has mechanical integrity if:

1. there is no significant leak in the casing, tubing, or packer (Part I); and
2. there is no significant fluid movement into a USDW through vertical channels adjacent to the injection well bore (Part II).

The Permit prohibits injection into a well which lacks mechanical integrity.

The Permit requires that the well demonstrate mechanical integrity prior to injection and periodically thereafter. A demonstration of mechanical integrity includes both internal (Part I) and external (Part II). The methods and frequency for demonstrating Part I and Part II mechanical integrity are dependent upon well-specific conditions as explained below.

Well construction and site-specific conditions dictate the following requirements for Mechanical Integrity (MI) demonstrations:

**PART I MI:** Internal MI will be demonstrated prior to beginning injection. Since this well is constructed with a standard casing, tubing, and packer configuration, a successful mechanical integrity test (MIT) is required to take place at least once every five (5) years. A demonstration of Part I MI is also required prior to resuming injection following any workover operation that affects the casing, tubing or packer. Part I MI may be demonstrated by a standard tubing-casing annulus pressure test using the maximum permitted injection pressure or 1000 psi, whichever is less, with a ten (10) percent or less pressure loss over thirty (30) minutes.

**PART II MI:** - The CBL indicates that cement does not meet minimum requirements needed to demonstrate zone isolation (at least 18 feet of continuous 80% bond, or better) through the confining zone. Therefore, further testing for Part II MI will be required prior to injection and at least once every five years thereafter. The demonstration shall be by temperature survey or other approved test. Approved tests for demonstrating Part II MI include a temperature survey, noise log or oxygen activation log, and Region 8 may also accept results of a radioactive tracer survey under certain circumstances.

## **PART VI. Monitoring, Recordkeeping and Reporting Requirements**

### **Injection Well Monitoring Program**

At least once a year the permittee must analyze a sample of the injected fluid for total dissolved solids (TDS), specific conductivity, pH, and specific gravity. This analysis shall be reported to EPA annually as part of the Annual Report to the Director. Any time a new source of injected fluid is added, a fluid analysis shall be made of the new source.

Instantaneous injection pressure, injection flow rate, cumulative fluid volume and TCA pressures must be observed on a weekly basis. A recording, at least once every thirty (30) days, must be made of the injection pressure, injection flow rate and cumulative fluid volume, and the maximum and average value for each must be determined for each month. This information is required to be reported annually as part of the Annual Report to the Director.

## **PART VII. Plugging and Abandonment Requirements (40 CFR 146.10)**

### **Plugging and Abandonment Plan**

Prior to abandonment, the well or wells must be plugged with cement in a manner which will not allow the movement of fluids either into or between USDWs. The plugging and abandonment plan is described in Appendix E of the Permit.

All cement plugs will be set with tubing.

9.2 ppg plugging gel, or fresh water weighted with bentonite or treated brine will be placed between all cement plugs.

The following Plugging and Abandonment Plan, as proposed by the permittee, is predicated on the permittee not revising the injection perforations cited on the schematic diagram of well construction/conversion. Should the uppermost perforations (4417 feet to 4422 feet) be modified in construction, the EPA will modify the P&A Plan accordingly.

PLUG NO. 1: A Cast Iron Bridge Plug (CIBP) at 4322 feet with 100 feet of Class "G" cement on CIBP.

PLUG NO. 2: A 300-foot Class "G" cement plug from 2000 feet to 2300 feet. This plug will cover both a water zone and the top of the Green River Formation.

PLUG NO. 3: Perforate 362 feet with JSPF. Circulate Class "G" cement down the 5-1/2 inch casing and up the 5-1/2 inch X 8-5/8 inch annulus.

PLUG NO. 4: A Class "G" cement plug on the backside of the 5-1/2 inch casing from the surface to a depth of 365 feet.

## **PART VIII. Financial Responsibility (40 CFR 144.52)**

### **Demonstration of Financial Responsibility**

The permittee is required to maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director. The permittee shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance such as financial statements or other materials acceptable to the Director. The Regional Administrator may, on a periodic basis, require the holder of a lifetime permit to submit a revised estimate of the resources needed to plug and abandon the well to reflect inflation of such costs, and a revised demonstration of financial responsibility if necessary. Initially, the operator has chosen to demonstrate financial responsibility with:

Financial Statement approved by the EPA. The EPA has also approved the estimate of \$32,500 to

plug and abandon this facility.

Financial Statement, received April 22, 2005

Evidence of continuing financial responsibility is required to be submitted to the Director annually.



United States Environmental Protection Agency  
Washington, DC 20460

## Application To Transfer Permit

Name and Address of Existing Permittee

Name and Address of Surface Owner

Locate Well and Outline Unit on  
Section Plat- 640 Acres.

N															
S															
E															

State

County

Permit Number

Surface Location Description

1/4 of 1/4 of 1/4 of 1/4 of Section Township Range

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location ft. from (N/S) Line of quarter section  
and ft. from (E/W) Line of quarter section.

Well Activity

Well Status

Type of Permit

Class I  
Class II  
Brine Disposal  
Enhanced Recovery  
Hydrocarbon Storage  
Class III  
Other

Operating  
Modification/Conversion  
Proposed

Individual  
Area  
Number of Wells

Lease Number

Well Number

Name(s) and Address(es) of New Owners(s)

Name and Address of New Operator

*Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.*

*The new permittee must show evidence of financial responsibility by the submission of a surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the Director.*

### Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Signature

Date Signed



# ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON  
SECTION PLAT — 640 ACRES

**STATE**

**COUNTY**

**PERMIT NUMBER**

### SURFACE LOCATION DESCRIPTION

SURFACE LOCATION DESCRIPTION  
1/4 of 1/4 of 1/4 of 1/4 of Section Township Range

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

## Surface

Location \_\_\_\_ ft. from (N/S) \_\_\_\_ Line of quarter section

and \_\_\_\_\_ ft. from (E/W) \_\_\_\_\_ Line of quarter section

### WELL ACTIVITY

**TYPE OF PERMIT**

**☐ Brine Disposal**

☐ Enhanced Recovery☐ Hydrocarbon Storage☐ Individual☐ Area

Number of Wells \_\_\_\_\_

**Lease Name****Well Number**

### INJECTION PRESSURE

**TOTAL VOLUME INJECTED**

**TUBING — CASING ANNULUS PRESSURE  
(OPTIONAL MONITORING)**

[illegible]

## CERTIFICATION

*I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).*

NAME AND OFFICIAL TITLE (Please type or print)

**SIGNATURE**

DATE SIGNED \_\_\_\_\_



## PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CEMENTING COMPANY

LOCATE WELL AND OUTLINE UNIT ON  
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location \_\_\_\_ ft. from (N/S) \_\_\_\_ Line of quarter section

and \_\_\_\_ ft. from (E/W) \_\_\_\_ Line of quarter section

TYPE OF AUTHORIZATION

☐ Individual Permit

☐ Area Permit

☐ Rule

Number of Wells \_\_\_\_

Lessee Name

Describe in detail the manner in which the fluid was placed  
the method used in introducing it into the hole

### CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

☐ CLASS I

☐ CLASS II

☐ Brine Disposal

☐ Enhanced Recovery

☐ Hydrocarbon Storage

☐ CLASS III

WELL ACTIVITY

METHOD OF EMPLACEMENT OF CEMENT PLUG

☐ The Balance Method

☐ The Dump Seder Method

☐ The Two-Plug Method

☐ Other

### CEMENTING TO PLUG AND ABANDON DATA:

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

### LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From	To	From	To

Signature of Cementer or Authorized Representative

Signature of EPA Representative

### CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.  
(REF. 40 CFR 122.22)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

## WELL REWORK RECORD



NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON  
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

\_\_\_\_ 1/4 of \_\_\_\_ 1/4 of \_\_\_\_ 1/4 of \_\_\_\_ 1/4 of Section \_\_\_\_ Township \_\_\_\_ Range \_\_\_\_

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location \_\_\_\_ ft. from (N/S) \_\_\_\_ Line of quarter section

and \_\_\_\_ ft. from (E/W) \_\_\_\_ Line of quarter section

## WELL ACTIVITY

- ☐ Brine Disposal  
☐ Enhanced Recovery  
☐ Hydrocarbon Storage

Lease Name

Total Depth Before Rework

Total Depth After Rework

Date Rework Commenced

Date Rework Completed

## TYPE OF PERMIT

- ☐ Individual  
☐ Area  
 Number of Wells \_\_\_\_

Well Number

## WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

## WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL  
USE ADDITIONAL SHEETS IF NECESSARY

WIRE LINE LOGS, LIST EACH TYPE

	Log Types		Logged Intervals

## CERTIFICATION

*I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).*

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

APR 19 1994

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 34  
Cement bond logging techniques and interpretation

FROM: Tom Pike, Chief *[Signature]*  
UIC Direct Implementation Section

TO: All Section Staff  
Montana Operations Office

These procedures are to be followed when running and interpreting cement bond logs for injection and production (area of review) wells.

PART I - PREPARE THE WELL

Allow cement to cure for a sufficient time to develop full compressive strength. A safe bet is to let the cement cure for 72 hours. If you run the bond log before the cement achieves its maximum compressive strength, the log may show poor bonding. Check cement handbooks for curing times.

Circulate the hole with a fluid (either water or mud) of uniform consistency. Travel times are influenced by the type of fluid in the hole. If the fluid changes between two points, the travel times may "drift," causing difficulty in interpretation and quality control.

Be prepared to run the cement bond log under pressure to reduce the effects of micro-annulus. Micro-annulus may be caused by several reasons, but the existence of a micro-annulus does not necessarily destroy the cement's ability to form a hydraulic seal. If the log shows poor bonding, rerun the log with the slightly more pressure on the casing as was present when the cement cured. This will cause the casing to expand against the cement and close the micro-annulus.

PART II - PARAMETERS TO LOG

**Amplitude (mV)** - This curve shows how much acoustic signal reaches a receiver and is an important indicator of cement bond. Record the amplitude on the 3 foot spaced receiver.

**Travel time ( $\mu$ s)** - This curve shows the amount of time it takes an acoustic signal to travel between the source and a receiver. For free pipe of a given size and weight, the travel time between points is very predictable, although variable among different company's tools. Service companies should be able to provide accurate estimates of travel times for free pipe of a given size and weight. Travel time is required as a quality control measurement. Record the travel time on the 3 foot spaced receiver.

**Variable density (VDL)** - Pipe signals, formation signals, and fluid signals are usually easy to recognize on the VDL. If these signals can be identified, a practical determination for the presence or absence of cement can be made. VDL is logged on the 5 foot spaced receiver.

**Casing collar locator (CCL)** - Used to correlate the bond log with cased hole logs and to match casing collars with the collars that show up on the VDL portion of the display.

**Gamma ray** - Used to correlate the bond log with other logs.

### PART III - LOGGING TECHNIQUE

Calibrate the tool in free pipe at the shop, prior to, and following the log run. Include calibration data with log.

Run receivers spaced 3 feet and 5 feet from transmitter.

Run at least 3 bow-type or rigid aluminum centralizers in vertical holes, 6 centralizers in directional holes. A CCL is not an adequate centralizer.

Complete log header with casing/cement data, tool/panel data, gate settings and tool sketch showing centralizers.

Set the amplitude gate so that skipping does not occur at amplitudes greater than 5 mV.

Record amplitude with fixed gate and note position on log.

Record amplified amplitude on a 5X scale for low amplitudes.

Record amplitude and travel time on the 3 foot receiver.

Record travel time on a 100  $\mu$ s scale (150 - 250, 200 - 300).

Logging speed should be approximately 30 ft/min.

Log repeat sections.

### PART IV - QUALITY CONTROL

Compare the tool calibration data to see if the tool "drifts" during logging. Differences in the calibration data may require you to re-log the well to obtain reliable data.

Compare repeat sections to see if logging results are repeatable.

Check the logged free pipe travel times with the service company charts for the specific tool and casing size used. Since the travel times depend on such factors as casing weight, type of fluid in the hole, etc., these charts should be used only as guidelines. When you are confident of the

free-pipe travel times as seen on the log, use them. When interpreting the log, a decrease in travel time (faster times) with simultaneous reduction of amplitude may show a de-centered tool. A 4 to 5 micro-second ( $\mu s$ ) decrease in travel time corresponds to about a 35% loss of amplitude. A decrease in travel time more than 4 to 5  $\mu s$  is unacceptable.

## PART V - LOG INTERPRETATION

Do not rely on the service company charts for amplitudes corresponding to a good bond. These amplitudes depend on many factors: type of cement used, fluid in the hole, etc.

To estimate bond index, choose intervals on the log that correspond to 0% bond and 100% bond. Read the amplitude corresponding to 100% bond from the best-bonded interval on the log (NOTE: the accuracy of this amplitude reading is very critical to the bond index calculations). Next, find the amplitude corresponding to 0% bond. Some bond logs may not include a section with free pipe. In this instance, choose the appropriate free-pipe travel time from the service company charts for your specific tool, or from the generalized chart (TABLE 2) at the end of this guidance. To calculate a bond index of 80%, use the following equation:

$$A_{80} = 10^{[(0.2)\log(A_0) + (0.8)\log(A_{100})]}$$

where:

$A_{80}$  = Amplitude at 80% bond (mV)  
 $A_0$  = Amplitude at 0% bond (mV)  
 $A_{100}$  = Amplitude at 100% bond (mV)

### EXAMPLE

As an example, consider a bond log showing the following conditions:

- Free pipe (0% bond) amplitude at 81 mV.
- 100 % bond amplitude at 1 mV.

Substituting the above values into the equation results in:

$$A_{80} = 10^{[(0.2)\log(81) + (0.8)\log(1)]}$$

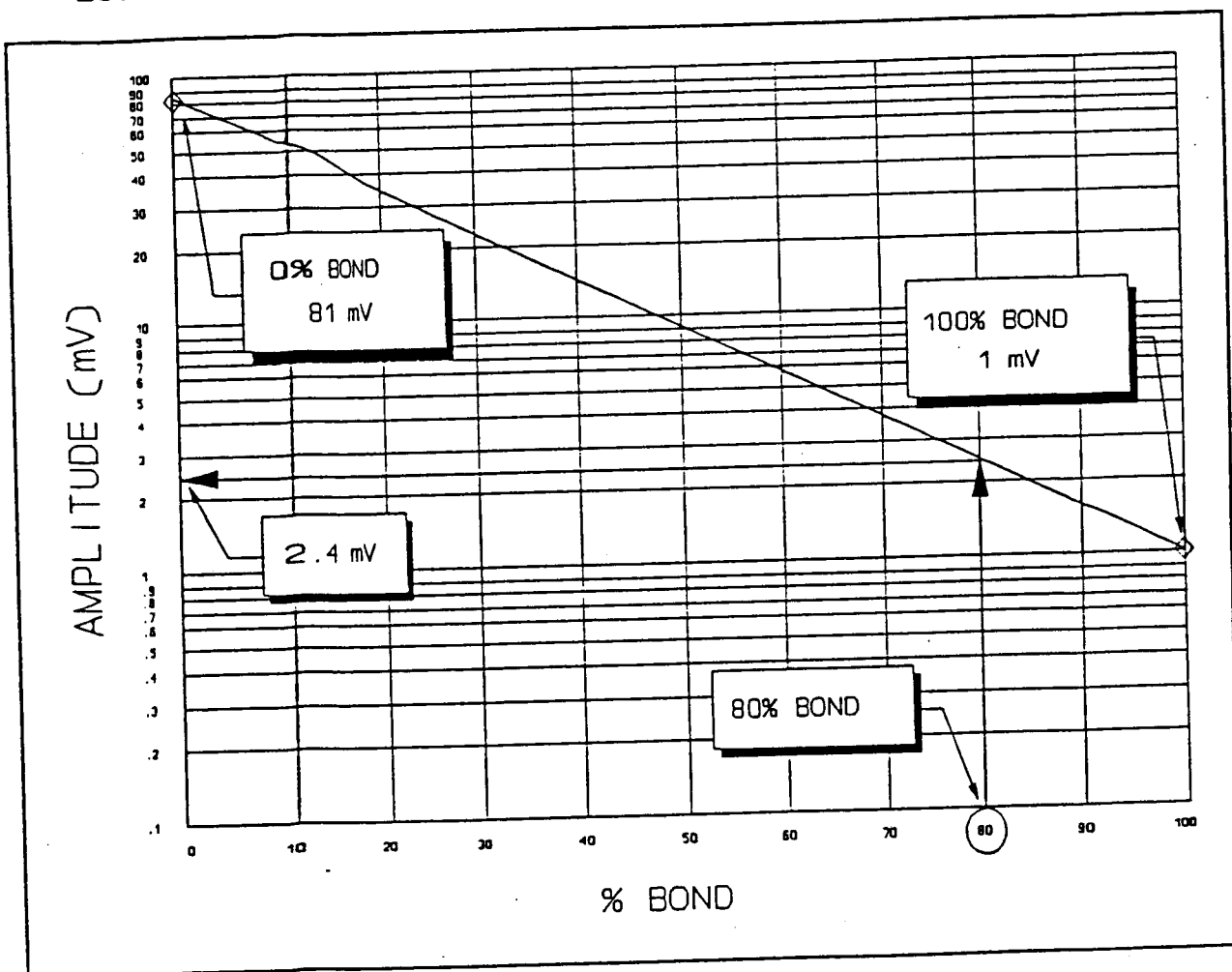
$$A_{80} = 2.41 mV$$

Another way to calculate the amplitude at 80% bond is by plotting these same log readings on a semi-log chart.

Plot the values for 0% Bond and 100% Bond vs. their respective Amplitudes on a semi-log chart - amplitudes on the log scale (y-axis), and bond indices on the linear scale (x-axis). Then, connect the points with a straight line.

To estimate the amplitude corresponding to an 80% Bond Index, enter the graph on the x-axis at 80% bond. Draw a straight line upward until you reach the diagonal line connecting the 0% and 100% points. Continue by drawing a horizontal line to the y-axis. This point on the y-axis is the amplitude corresponding to an 80% Bond Index.

Using the values from the example above, your chart will look like that shown below:



In this example, 80% bond shows an amplitude of 2.4 mV.

A convenient way to evaluate the log is to draw a line on the bond log's amplified amplitude (5X) track corresponding to the calculated 80% bond amplitude. Whenever the logged amplified amplitude (5X) curve drops below (to the left of) the drawn line, this indicates a bond of 80% or more.

# PART IV - CONCLUSIONS - REMINDERS

Different pipe weights and cement types will affect the log readings, so be mindful of these factors in wells with varying pipe weights and staged cement or squeeze jobs.

Collars generally do not show up on the VDL track in well-bonded sections of casing.

Longer (slower) travel time due to cycle skipping or cycle stretch usually suggests good bonding.

Shorter (faster) travel times indicate a de-centered tool or a fast formation and will provide erroneous amplitude readings that make evaluation impossible through that section of the log. Fast formations do not assure that the cement contacts the formation all around the borehole.

Although the bond index is important, you should not base your assessment of the cement quality on that one factor alone. You should use the VDL to support any indication of bonding. Also, you must know how each portion of the CBL (VDL, travel time, amplitude, etc.) influences another.

Most 3'-5' CBL's cannot identify a 1/2" channel in cement. Therefore, you also need to consider the thickness of a cemented section needed to provide zone isolation. For adequate isolation in injection wells, the log should indicate a continuous 80% or greater bond through the following intervals as seen in TABLE 1, below:

TABLE 1 - INTERVALS FOR ADEQUATE BOND

PIPE DIAMETER (in)	CONTINUOUS INTERVAL WITH BOND $\geq$ 80% (ft)
4-1/2	15
5	15
5-1/2	18
7	33
7-5/8	36
9-5/8	45
10-3/4	54

Adequately bonded cement by itself will not prevent fluid movement. If the bond log shows adequate bond through an interval where the geology allows fluid to move (permeable and/or fractured zones), fluids may move around perfectly bonded cement by travelling through the formation. Always cross-check your bond log with open hole logs to see that you have adequate bonding through the proper interval(s).

TABLE 2 - TRAVEL TIMES AND AMPLITUDES FOR FREE PIPE  
(3 FT RECEIVER)

CASING SIZE (in)	CASING WEIGHT (lb/ft)	TRAVEL TIME ( $\mu$ s)		AMPLITUDE (mV)
		1-11/16" TOOL	3-5/8" TOOL	
4-1/2	9.5	252	233	81
	11.6	250	232	81
	13.5	249	230	81
5	15.0	257	238	76
	18.0	255	236	76
	20.3	253	235	76
5-1/2	15.5	266	248	72
	17.0	265	247	72
	20.0	264	245	72
	23.0	262	243	72
7	23.0	291	271	62
	26.0	289	270	62
	29.0	288	268	62
	32.0	286	267	62
	35.0	284	265	62
	38.0	283	264	62
7-5/8	26.4	301	281	59
	29.7	299	280	59
	33.7	297	278	59
	39.0	295	276	59
9-5/8	40.0	333	313	51
	43.5	332	311	51
	47.0	330	310	51
	53.5	328	309	51
10-3/4	40.5	354	333	48
	45.5	352	332	48
	51.0	350	330	48
	55.5	349	328	48

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 35  
Procedures to follow when excessive annular pressure is  
observed on a well.

FROM: Tom Pike, Chief  
UIC Direct Implementation Section

TO: All Section Staff  
Montana Operations Office

The following procedure is intended as an aid to UIC field inspectors when they encounter excessive annular pressure on a well. Excessive annular pressure is defined as 100 psi or 10% of the tubing pressure, whichever is less.

Usually, annular pressure is a direct indication of a loss of mechanical integrity. In some instances, recurring annular pressure may be caused by fluctuations in the temperature of the injected fluid. These temperature fluctuations may cause the annular pressure to increase when a hot fluid is being injected and decrease as the temperature of the injected fluid cools. The presence of temperature-induced pressure on the annulus does not indicate a malfunction in the casing/tubing/packer system and is not considered a loss of mechanical integrity. Wells exhibiting recurring temperature-induced annular pressure may be allowed to continue injecting if a temperature monitoring program is approved and followed.

This guidance was written to help determine the cause of annular pressure. When the procedures in this guidance are followed, any major mechanical integrity problems (a breach in the casing/tubing/packer system) will become apparent quickly. A quick determination will allow the operator to begin follow-up procedures immediately to prevent contamination to USDWs.

Use Section Guidance No. 35 to determine if the well has experienced a loss of mechanical integrity. If you find that there is a loss of mechanical integrity, use *Headquarters Guidance No. 76. - Follow-up to loss of Mechanical Integrity for Class II Wells* to bring the well back into compliance. The use of Section Guidance No. 35 is not to be confused with, nor does it supersede any provision of *Headquarters Guidance No. 76*. Instead, the two guidance documents are meant to work together to identify and to remedy any potential mechanical integrity failure.

A flowchart for Section Guidance No. 35 is included for quick reference in the field.

PROCEDURES TO FOLLOW WHEN EXCESSIVE ANNULAR PRESSURE IS OBSERVED

During field inspections, the following procedures should be followed when excessive annular pressure is observed. Excessive annular pressure is defined as 100 psi or 10% of the tubing pressure, whichever is less.

NOTE CONDITIONS  
AT THE WELL

Note tubing and annular pressure readings, and the operating status of the well (injecting, shut-in, etc.) on the UIC inspection form.

SEE IF ANNULUS  
PRESSURE WILL  
BLEED-OFF

Attempt to bleed the pressure from the annulus by having the operator open the annulus (for a maximum of sixty seconds).

It is the operator's responsibility to collect and dispose of any fluids bled from the annulus.

DID THE ANNULAR  
PRESSURE BLEED  
TO 0 PSI WITHIN  
SIXTY SECONDS?

YES

NO

Have the operator close the annulus.

Have the operator close the annulus.

On your inspection form note the volume of fluid (or gas) bled from the annulus during the sixty seconds, and the tubing and annulus pressures.

On your inspection form note the volume of fluid (or gas) bled from the annulus during the sixty seconds, and the tubing and annulus pressures.

Have the operator shut the well in for 2 hours, and if possible, bleed pressure from the injection tubing. Record the tubing and annulus pressure after two hours.

Bleed off the annulus for 60 seconds. Record the tubing and annulus pressures after bleed-off, and estimate the volume bled off.

INFORM THE OPERATOR THAT THE WELL HAS AN APPARENT MECHANICAL INTEGRITY FAILURE and provide the operator with the guidance that discusses OPERATOR RESPONSIBILITIES FOLLOWING MECHANICAL INTEGRITY FAILURES.

END PROCEDURE.

SEE IF PRESSURE  
RETURNS WITHIN  
15 MINUTES

Continue to monitor the well for annulus pressure return for at least 15 minutes after the annulus valve is closed.

DOES PRESSURE  
RETURN TO THE  
ANNULUS AFTER 15  
MINUTES?

YES

NO

On your inspection form, note the annulus and tubing pressures recorded after 15 minutes.

Have the operator shut the well in for 2 hours, and if possible, bleed pressure from the injection tubing. Record the tubing and annulus pressure after two hours.

Bleed off the annulus for 60 seconds. Record the tubing and annulus pressures after bleed-off, and estimate the volume bled off.

INFORM THE OPERATOR THAT THE WELL HAS AN APPARENT MECHANICAL INTEGRITY FAILURE and provide the operator with the guidance that discusses OPERATOR RESPONSIBILITIES FOLLOWING MECHANICAL INTEGRITY FAILURES.

END PROCEDURE.

Require the operator to monitor and report to EPA with the annulus and tubing pressures for at least 14 days to see if pressure returns to the annulus.

Instruct the operator to contact EPA as soon as any pressure returns to the annulus.

DOES PRESSURE  
RETURN TO THE  
ANNULUS WITHIN  
14 DAYS?

YES

NO

EPA Technical Expert will design a proper Mechanical Integrity test.

Compliance officer will require the operator to conduct the test within 14 days.

The well is considered to have mechanical integrity.

END PROCEDURE.

DOES THE WELL  
PASS THE MIT?

YES

NO

Require the operator to monitor and report to EPA with the annulus and tubing pressures for at least 14 days to see if pressure returns to the annulus.

Instruct the operator to contact EPA as soon as any pressure returns to the

INFORM THE OPERATOR THAT THE WELL HAS AN APPARENT MECHANICAL INTEGRITY FAILURE and provide the operator with the guidance that discusses OPERATOR RESPONSIBILITIES FOLLOWING MECHANICAL INTEGRITY FAILURES.

END PROCEDURE

DOES PRESSURE  
RETURN TO THE  
ANNULUS WITHIN  
14 DAYS?

YES

NO

EPA Technical Expert will design a proper Monitoring Program to determine the cause of recurrent annular pressure.

The well is considered to have mechanical integrity.

END PROCEDURE.

Compliance officer will require the operator to begin the Monitoring program within 14 days.

Conduct unannounced inspections at the well during the Monitoring Program.

IS THE ANNULUS  
PRESSURE CAUSED  
BY TEMPERATURE?

YES

NO

EPA Technical Expert will design a proper Temperature Monitoring Program that allows injection to continue while tracking relationship between temperature and recurrent annulus pressure.

INFORM THE OPERATOR THAT THE WELL HAS AN APPARENT MECHANICAL INTEGRITY FAILURE and provide the operator with the guidance that discusses OPERATOR RESPONSIBILITIES FOLLOWING MECHANICAL INTEGRITY FAILURES.

Compliance officer will require the operator to cease injection immediately if the operator fails to follow the Temperature Monitoring Program.

END PROCEDURE.

Compliance officer will require the operator to cease injection immediately if recurrent annular pressures cannot be explained by the results of the Temperature Monitoring Program.

Compliance officer will require annual Mechanical Integrity Tests using the standard pressure method.

## 14-DAY PRESSURE MONITORING

Please use this form to report data for a 14-day period after pressure is bled from the tubing-casing annulus. Please telephone EPA in Denver as soon as possible when/if pressure returns to the annulus. This data will be used to determine the cause(s) of recurrent annular pressure.

NOTE: DO NOT BLEED PRESSURE FROM ANNULUS DURING THE 14-DAY MONITORING PERIOD.

	DATE	TIME	ANNULUS PRESSURE (psi)	TUBING PRESSURE (psi)	WELL INJECTING (YES/NO)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

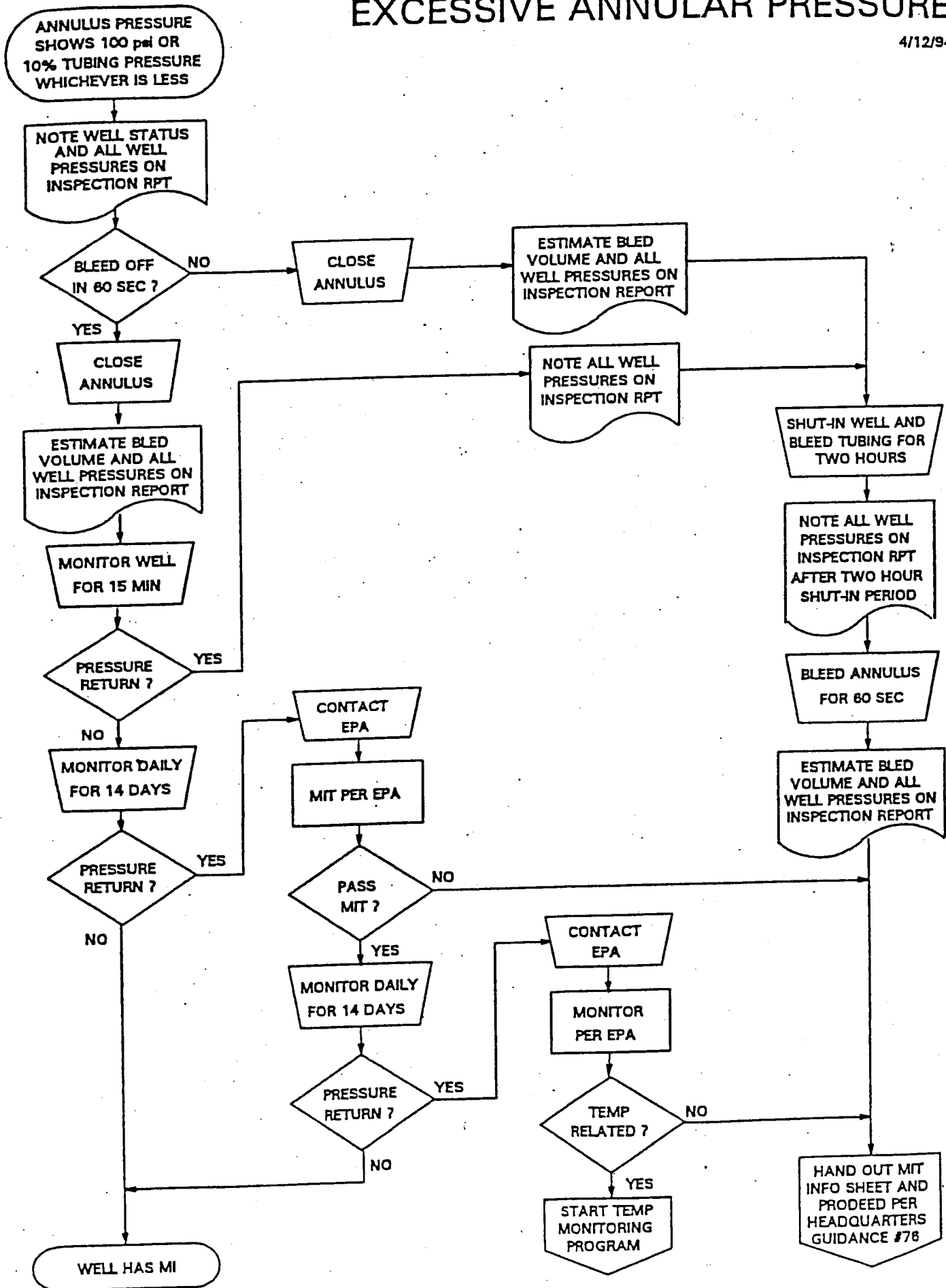
WELL NAME: \_\_\_\_\_

ATOR: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

# EXCESSIVE ANNULAR PRESSURE

4/12/94





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

## OPERATOR RESPONSIBILITIES FOLLOWING MECHANICAL INTEGRITY FAILURES

- 1) IMMEDIATELY - Cease injection and shut-in the well as rapidly as feasible. In no case shall the well remain in operation beyond 48 hours unless Tom Pike, Chief, Underground Injection Control Implementation (UIC-I) Section [(303) 293-1544] allows for temporary operation of the well.
- 2) WITHIN 24 HOURS - Verbally notify the UIC-I Section Chief of MIT failure even in cases where the failure is detected during a test which was witnessed by a UIC inspector.
- 3) WITHIN 5 DAYS - Submit a written follow-up report documenting test results, remediation taken or a proposed remediation plan and any limits established by the Director on appropriate volume or time for continued injection operation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 300  
DENVER, COLORADO 80202-2466

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 37  
Demonstrating Part II (external) Mechanical Integrity  
for a Class II injection well permit.

FROM: Tom Pike, Chief  
UIC Direct Implementation Section

TO: All Section Staff  
Montana Operations Office

During the review for a Class II injection well permit, consideration must be given to the mechanical integrity (MI) of the well. MI demonstrates that the well is in sound condition and that the well is constructed in a manner that prevents injected fluids from entering any formation other than the authorized injection formation.

A demonstration of MI is a two part process:

PART I - INTERNAL MECHANICAL INTEGRITY is an assurance that there are no significant leaks in the casing/tubing/packer system.

PART II - EXTERNAL MECHANICAL INTEGRITY demonstrates that after fluid is injected into the formation, the injected fluids will not migrate out of the authorized injection interval through vertical channels adjacent to the wellbore.

A Class II injection well may demonstrate Part II MI by showing that injected fluids remain within the authorized injection interval. This may be accomplished as follows:

- 1) Cement bond log showing 80% bond through the an appropriate interval (Section Guidance 34),
- 2) Radioactive tracer survey conducted according to a EPA-approved procedure, or
- 3) Temperature survey conducted according to a EPA-approved procedure (Section Guidance 38).

For each test option above, the operator of the injection well should submit a plan for conducting the test. The plan will then be approved (or modified and approved) by EPA. EPA's pre-approval of the testing method will assure the operator that the

test is conducted consistent with current EPA guidance, and that the test will provide meaningful results.

Part II MI may be demonstrated either before or after issuing the Final Permit. However, if Part II is to be demonstrated after the Final Permit is issued, a provision in the permit will require the demonstration of Part II MI. The well will also be required to pass Part II MI prior to granting authorization to inject.

Radioactive tracer surveys and temperature surveys require that the well be allowed to inject fluids as part of the procedure. In these cases, a well that has shown no other demonstration of Part II MI will be allowed to inject only that volume of fluid that is necessary to conduct the appropriate test.

After the results of the test proves that the well has passed Part II MI, the well will be given authorization to begin full injection operations.

If any of the tests show a lack of Part II MI, the well will be repaired and retested, or plugged (See Headquarters Guidance #76).

# Mechanical Integrity Test

## Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency  
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW  
999 18<sup>th</sup> Street, Suite 500 Denver, CO 80202-2466

EPA Witness: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Test conducted by: \_\_\_\_\_

Others present: \_\_\_\_\_

Well Name: _____	Type: ER SWD	Status: AC TA UC
Field: _____		
Location: _____	Sec: _____ T _____ N/S R _____ E/W	County: _____ State: _____
Operator: _____		
Last MIT: ____/____/____	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☐ Yes ☐ No

Initial test for permit? ☐ Yes ☐ No

Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ Yes ☐ No If Yes, rate: \_\_\_\_\_ bpd

Pre-test casing/tubing annulus pressure: \_\_\_\_\_ psig

MITDATA TABLE		Test #1	Test #2	Test #3
TUBING		PRESSURE		
Initial Pressure	psig	psig	psig	
End of test pressure	psig	psig	psig	
CASING / TUBING		ANNULUS PRESSURE		
0 minutes	psig	psig	psig	
5 minutes	psig	psig	psig	
10 minutes	psig	psig	psig	
15 minutes	psig	psig	psig	
20 minutes	psig	psig	psig	
25 minutes	psig	psig	psig	
30 minutes	psig	psig	psig	
minutes	psig	psig	psig	
minutes	psig	psig	psig	
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	

Does the annulus pressure build back up after the test? ☐ Yes ☐ No



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500

DENVER, COLORADO 80202-2466

SUBJECT: GROUND WATER SECTION GUIDANCE NO. 39

Pressure testing injection wells for Part I (internal)  
Mechanical Integrity

FROM: Tom Pike, Chief  
UIC Direct Implementation Section

TO: All Section Staff  
Montana Operations Office

Introduction

The Underground Injection Control (UIC) regulations require that an injection well have mechanical integrity at all times (40 CFR 144.28 (f) (2) and 40 CFR 144.51 (q) (1)). A well has mechanical integrity (40 CFR 146.8) if:

- (1) There is no significant leak in the tubing, casing or packer; and
- (2) There is no significant fluid movement into an underground source of drinking water (USDW) through vertical channels adjacent to the injection wellbore.

Definition: Mechanical Integrity Pressure Test for Part I. A pressure test used to determine the integrity of all the downhole components of an injection well, usually tubing, casing and packer. It is also used to test tubing cemented in the hole by using a tubing plug or retrievable packer. Pressure tests must be run at least once every five years. If for any reason the tubing/packer is pulled, the injection well is required to pass another mechanical integrity test of the tubing casing and packer prior to recommencing injection regardless of when the last test was conducted. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on either the attached form or an equivalent form containing the necessary information. A pressure recording chart documenting the actual annulus test pressures must be attached to the form.

This guidance addresses making a determination of Part I of Mechanical Integrity (no leaks in the tubing, casing or packer). The Region's policy is: 1) to determine if there are significant leaks in the tubing, casing or packer; 2) to assure that the casing can withstand pressure similar to that which

would be applied if the tubing or packer fails; 3) to make the Region's test procedure consistent with the procedures utilized by other Region VIII Primacy programs; and 4) to provide a procedure which can be easily administered and is applicable to all class I and II wells. Although there are several methods allowed for determining mechanical integrity, the principal method involves running a pressure test of the tubing/casing annulus. Region VIII's procedure for running a pressure test is intended to aid UIC field inspectors who witness pressure tests for the purpose of demonstrating that a well has Part I of Mechanical Integrity. The guidance is also intended as a means of informing operators of the procedures required for conducting the test in the absence of an EPA inspector.

### Pressure Test Description

#### Test Frequency

The mechanical integrity of an injection well must be maintained at all times. Mechanical integrity pressure tests are required at least every five (5) years. If for any reason the tubing/packer is pulled, however, the injection well is required to pass another mechanical integrity test prior to recommencing injection regardless of when the last test was conducted. The Regional UIC program must be notified of the workover and the proposed date of the pressure test. The well's test cycle would then start from the date of the new test if the well passes the test and documentation is adequate. Tests may be required on a more frequent basis depending on the nature of the injectate and the construction of the well (see Section guidance on MITs for wells with cemented tubing and regulations for Class I wells).

Region VIII's criteria for well testing frequency is as follows:

1. Class I hazardous waste injection wells; initially [40 CFR 146.68(d)(1)] and annually thereafter;
2. Class I non-hazardous waste injection wells; initially and every two (2) years thereafter, except for old permits (such as the disposal wells at carbon dioxide extraction plants which require a test at least every five years);
3. Class II wells with tubing, casing and packer; initially and at least every five (5) years thereafter;
4. Class II wells with tubing cemented in the hole; initially and every one (1) or two (2) years thereafter

depending on well specific conditions (See Region VIII UIC Section Guidance #36);

5. Class II wells which have been temporarily abandoned (TAd) must be pressure tested after being shut-in for two years; and
6. Class III uranium extraction wells; initially.

#### Test Pressure

To assure that the test pressure will detect significant leaks and that the casing is subjected to pressure similar to that which would be applied if the tubing or packer fails, the tubing/casing annulus should be tested at a pressure equal to the maximum allowed injection pressure or 1000 psig whichever is less. The annular test pressure must, however, have a difference of at least 200 psig either greater or less than the injection tubing pressure. Wells which inject at pressures of less than 300 psig must test at a minimum pressure of 300 psig, and the pressure difference between the annulus and the injection tubing must be at least 200 psi.

#### Test Criteria

1. The duration of the pressure test is 30 minutes.
2. Both the annulus and tubing pressures should be monitored and recorded every five (5) minutes.
3. If there is a pressure change of 10 percent or more from the initial test pressure during the 30 minute duration, the well has failed to demonstrate mechanical integrity and should be shut-in until it is repaired or plugged.
4. A pressure change of 10 percent or more is considered significant. If there is no significant pressure change in 30 minutes from the time that the pressure source is disconnected from the annulus, the test may be completed as passed.

#### Recordkeeping and Reporting

The test results must be recorded on the attached form. The annulus pressure should be recorded at five (5) minute intervals. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on the attached form or an equivalent form and a pressure recording

chart documenting the actual annulus test pressures must be attached to the submittal. The tubing pressure at the beginning and end of each test must be recorded. The volume of the annulus fluid bled back at the surface after the test should be measured and recorded on the form. This can be done by bleeding the annulus pressure off and discharging the associated fluid into a five gallon container. The volume information can be used to verify the approximate location of the packer.

#### Procedures for Pressure Test

1. Scheduling the test should be done at least two (2) weeks in advance.
2. Information on the well completion (location of the packer, location of perforations, previous cement work on the casing, size of casing and tubing, etc.) and the results of the previous MIT test should be reviewed by the field inspector in advance of the test. Regional UIC Guidance #35 should also be reviewed. Information relating to the previous MIT and any well workovers should be reviewed and taken into the field for verification purposes.
3. All Class I wells and Class II SWD wells should be shut-in prior to the test. A 12 to 24-hour shut-in is preferable to assure that the temperature of the fluid in the wellbore is stable.
4. Class II enhanced recovery wells may be operating during the test, but it is recommended that the well be shut-in if possible.
5. The operator should fill the casing/tubing annulus with inhibited fluid at least 24 hours in advance, if possible. Filling the annulus should be undertaken through one valve with the second valve open to allow air to escape. After the operator has filled the annulus, a check should be made to assure that the annulus will remain full. If the annulus can not maintain a full column of fluid, the operator should notify the Director and begin a rework. The operator should measure and report the volume of fluid added to the annulus. If not already the case, the casing/tubing valves should be closed, at least, 24 hours prior to the pressure test.

Following steps are at the well:

6. Read tubing pressure and record on the form. If the

well is shut-in, the reported information on the actual maximum operating pressure should be used to determine test pressures.

7. Read pressure on the casing/tubing annulus and record value on the form. If there is pressure on the annulus, it should be bled off prior to the test. If the pressure will not bleed-off, the guidance on well failures (Region VIII UIC Section Guidance #35) should be followed.
8. Ask the operator for the date of the last workover and the volume of fluid added to the annulus prior to this test and record information on the form.
9. Hook-up well to pressure source and apply pressure until test value is reached.
10. Immediately disconnect pressure source and start test time (If there has been a significant drop in pressure during the process of disconnection, the test may have to be restarted). The pressure gages used to monitor injection tubing pressure and annulus pressure should have a pressure range which will allow the test pressure to be near the mid-range of the gage. Additionally, the gage must be of sufficient accuracy and scale to allow an accurate reading of a 10 percent change to be read. For instance, a test pressure of 600 psi should be monitored with a 0 to 1000 psi gage. The scale should be incremented in 20 psi increments.
11. Record tubing and annulus pressure values every five (5) minutes.
12. At the end of the test, record the final tubing pressure.
13. If the test fails, check the valves, bull plugs and casing head close up for possible leaks. The well should be retested.
14. If the second test indicates a well failure, the Region should be informed of the failure within 24 hours by the operator, and the well should be shut-in within 48 hours per Headquarters guidance #76. A follow-up letter should be prepared by the operator which outlines the cause of the MIT failure and proposes a potential course of action. This report should be submitted to EPA within five days.

15. Bleed off well into a bucket, if possible, to obtain a volume estimate. This should be compared to the calculated value obtained using the casing/tubing annulus volume and fluid compressibility values.
16. Return to office and prepare follow-up.

#### Alternative Test Option

While it is expected that the test procedure outlined above will be applicable to most wells, the potential does exist that unique circumstances may exist for a given well that precludes or makes unsafe the application of this test procedure. In the event that these exceptional or extraordinary conditions are encountered, the operator has the option to propose an alternative test or monitoring procedures. The request must be submitted by the operator in writing and must be approved in writing by the UIC-Implementation Section Chief or equivalent level of management.

Attachment

# Mechanical Integrity Test

## Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency  
Underground Injection Control Program, UIC Direct Implementation Program 8P-W-GW  
999 18<sup>th</sup> Street, Suite 500 Denver, CO 80202-2466

EPA Witness: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Test conducted by: \_\_\_\_\_

Others present: \_\_\_\_\_

Well Name: _____	Type: ER SWD	Status: AC TA UC
Field: _____		
Location: _____	Sec: _____ T _____ N/S R _____ E/W	County: _____ State: _____
Operator: _____		
Last MIT: ____/____/____	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☐ Yes ☐ No

Initial test for permit? ☐ Yes ☐ No

Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ Yes ☐ No If Yes, rate: \_\_\_\_\_ bpd

Pre-test casing/tubing annulus pressure: \_\_\_\_\_ psig

MIT DATA TABLE		Test #1	Test #2	Test #3
TUBING PRESSURE				
Initial Pressure	psig		psig	psig
End of test pressure	psig		psig	psig
CASING / TUBING ANNULUS PRESSURE				
0 minutes	psig		psig	psig
5 minutes	psig		psig	psig
10 minutes	psig		psig	psig
15 minutes	psig		psig	psig
20 minutes	psig		psig	psig
25 minutes	psig		psig	psig
30 minutes	psig		psig	psig
minutes	psig		psig	psig
minutes	psig		psig	psig
RESULT	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.


1. TYPE OF WELL: OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NUMBER: USA UTU-74404
2. NAME OF OPERATOR: NEWFIELD PRODUCTION COMPANY		6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
3. ADDRESS OF OPERATOR: Route 3 Box 3630 CITY Myton STATE UT ZIP 84052		7. UNIT or CA AGREEMENT NAME: SUNDANCE UNIT
4. LOCATION OF WELL: FOOTAGES AT SURFACE: 2142 FSL 744 FEL		8. WELL NAME and NUMBER: FEDERAL 9-31-8-18
5. PHONE NUMBER: 435.646.3721		9. API NUMBER: 4304734931
6. COUNTY: UINTAH		10. FIELD AND POOL, OR WILDCAT: MONUMENT BUTTE
7. OTR/OTR. SECTION. TOWNSHIP. RANGE. MERIDIAN: NESE, 31, T8S, R18E		8. STATE: UT

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate)  Approximate date work will  	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLAIR
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only)  Date of Work Completion:  08/07/2006	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input checked="" type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/STOP)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: - Injection Conversion
	<input checked="" type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

The subject well was converted from a producing oil well to an injection well on 8/7/06. On 8/8/06 Dan Jackson with the EPA was contacted concerning the initial MIT on the above listed well. Permission was given at that time to perform the test on 8/10/06. On 8/10/06 the csg was pressured up to 1210 psig and charted for 30 minutes with no pressure loss. The well was not injecting during the test. The tbq pressure was 400 psig during the test. There was not an EPA representative available to witness the test. EPA# UT21024-07061 API #43-047-34931

Accepted by the  
Utah Division of  
Oil, Gas and Mining  
**FOR RECORD ONLY**

NAME (PLEASE PRINT) Callie Duncan	TITLE Production Clerk
SIGNATURE 	DATE 08/18/2006

(This space for State use only)

AUG 21 2006

# Mechanical Integrity Test

## Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency  
Underground Injection Control Program  
999 18<sup>th</sup> Street, Suite 500 Denver, CO 80202-2466

EPA Witness: \_\_\_\_\_ Date: 08/10/06  
Test conducted by: Dale Giles  
Others present: \_\_\_\_\_

Well Name: <u>Federal 9-31-8-18</u>	Type: ER SWD	Status: AC TA UC
Field: <u>Sundance Unit</u>		
Location: _____	Sec: <u>31</u> T <u>8</u> N <u>15</u> R <u>18</u> E W	County: <u>Uintah</u> State: <u>UT</u>
Operator: _____		
Last MIT: <u>  </u> / <u>  </u> / <u>  </u>	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☐ Yes ☐ No  
Initial test for permit? ☒ Yes ☐ No  
Test after well rework? ☐ Yes ☐ No  
Well injecting during test? ☐ Yes ☐ No If Yes, rate: \_\_\_\_\_ bpd

Pre-test casing/tubing annulus pressure: 0 psig

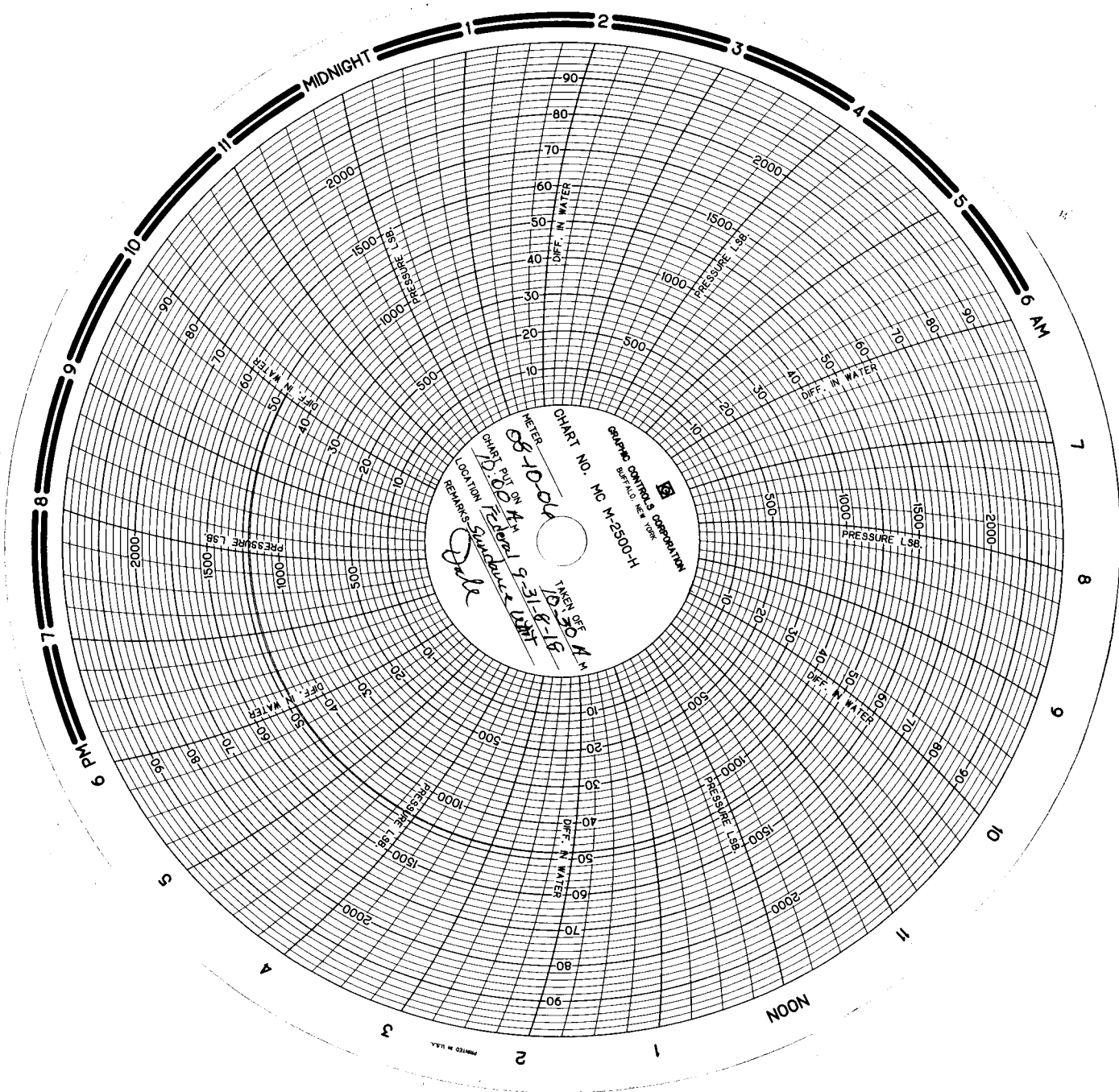
MIT DATA TABLE	Test #1	Test #2	Test #3
<b>TUBING</b>	<b>PRESSURE</b>		
Initial Pressure	<u>400</u> psig	psig	psig
End of test pressure	<u>400</u> psig	psig	psig
<b>CASING / TUBING</b>	<b>ANNULUS</b>	<b>PRESSURE</b>	
0 minutes	<u>1210</u> psig	psig	psig
5 minutes	<u>1210</u> psig	psig	psig
10 minutes	<u>1210</u> psig	psig	psig
15 minutes	<u>1210</u> psig	psig	psig
20 minutes	<u>1210</u> psig	psig	psig
25 minutes	<u>1210</u> psig	psig	psig
30 minutes	<u>1210</u> psig	psig	psig
_____ minutes	psig	psig	psig
_____ minutes	psig	psig	psig
<b>RESULT</b>	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Does the annulus pressure build back up after the test ? ☐ Yes ☒ No

## MECHANICAL INTEGRITY PRESSURE TEST

Additional comments for mechanical integrity pressure test, such as volume of fluid added to annulus and bled back at end of test, reason for failing test (casing head leak, tubing leak, other), etc.:

Signature of Witness: \_\_\_\_\_



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires January 31, 2004

**SUNDRY NOTICES AND REPORTS ON WELLS**  
Do not use this form for proposals to drill or to re-enter an  
abandoned well. Use Form 3160-3 (APD) for such proposals.

**SUBMIT IN TRIPLICATE - Other Instructions on reverse side**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

NEWFIELD PRODUCTION COMPANY

3a. Address

Route 3 Box 3630  
Myton, UT 84052

3b. Phone (include area code)

435.646.3721

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

2142 FSL 744 FEL

NESE Section 31 T8S R18E

5. Lease Serial No.

USA UTU-74404

6. If Indian, Allottee or Tribe Name.

7. If Unit or CA/Agreement, Name and/or

SUNDANCE UNIT

8. Well Name and No.

FEDERAL 9-31-8-18

9. API Well No.

4304734931

10. Field and Pool, or Exploratory Area

MONUMENT BUTTE

11. County or Parish, State

UINTAH, UT

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production(Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug & Abandon	<input type="checkbox"/> Temporarily Abandon	Change Status, Put Well
	<input checked="" type="checkbox"/> Convert to	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	on Injection

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The above referenced well was put on injection at 2:00 p.m. on 9/26/06.

EPA UIC #UT21024-06977

Utah Department of  
Oil, Gas and Mining  
**FOR RECORD ONLY**

I hereby certify that the foregoing is true and  
correct (Printed/Typed)

Mandie Crozier

Signature

Title

Regulatory Specialist

Date

09/28/2006

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Conditions of approval, if any, are attached. Approval of this notice does not warrant or  
certify that the applicant holds legal or equitable title to those rights in the subject lease  
which would entitle the applicant to conduct operations thereon.

Title

Date

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United  
States any false, fictitious and fraudulent statements or representations as to any matter within its jurisdiction

(Instructions on reverse)

**RECEIVED**  
**SEP 29 2006**  
DIV. OF OIL, GAS & MINING

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires January 31, 2004

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator  
NEWFIELD PRODUCTION COMPANY

3a. Address Route 3 Box 3630  
Myton, UT 84052

3b. Phone (include area code)  
435.646.3721

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2142 FSL 744 FEL  
NESE Section 31 T8S R18E

5. Lease Serial No.

UTU-74404

6. If Indian, Allottee or Tribe Name.

7. If Unit or CA/Agreement, Name and/or

SUNDANCE UNIT

8. Well Name and No.

FEDERAL 9-31-8-18

9. API Well No.

4304734931

10. Field and Pool, or Exploratory Area

MONUMENT BUTTE

11. County or Parish, State

UINTAH, UT

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production(Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug & Abandon	<input type="checkbox"/> Temporarily Abandon	Step Rate Test _____
	<input type="checkbox"/> Convert to	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	_____

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

A step rate test was conducted on the subject well on January 9, 2007. Results from the test indicate that the fracture gradient is .722 psi/ft. Therefore, Newfield is requesting that the maximum allowable injection pressure (MAIP) be changed to 1250 psi.

Accepted by the  
Utah Division of  
Oil, Gas and Mining  
**FOR RECORD ONLY**

RECEIVED

JAN 29 2007

I hereby certify that the foregoing is true and correct (Printed/ Typed)

Chevenne Bateman

Title

Well Analyst Foreman

Signature

Date

01/24/2007

DIV. OF OIL, GAS & MINING

Approved by

Title

Date

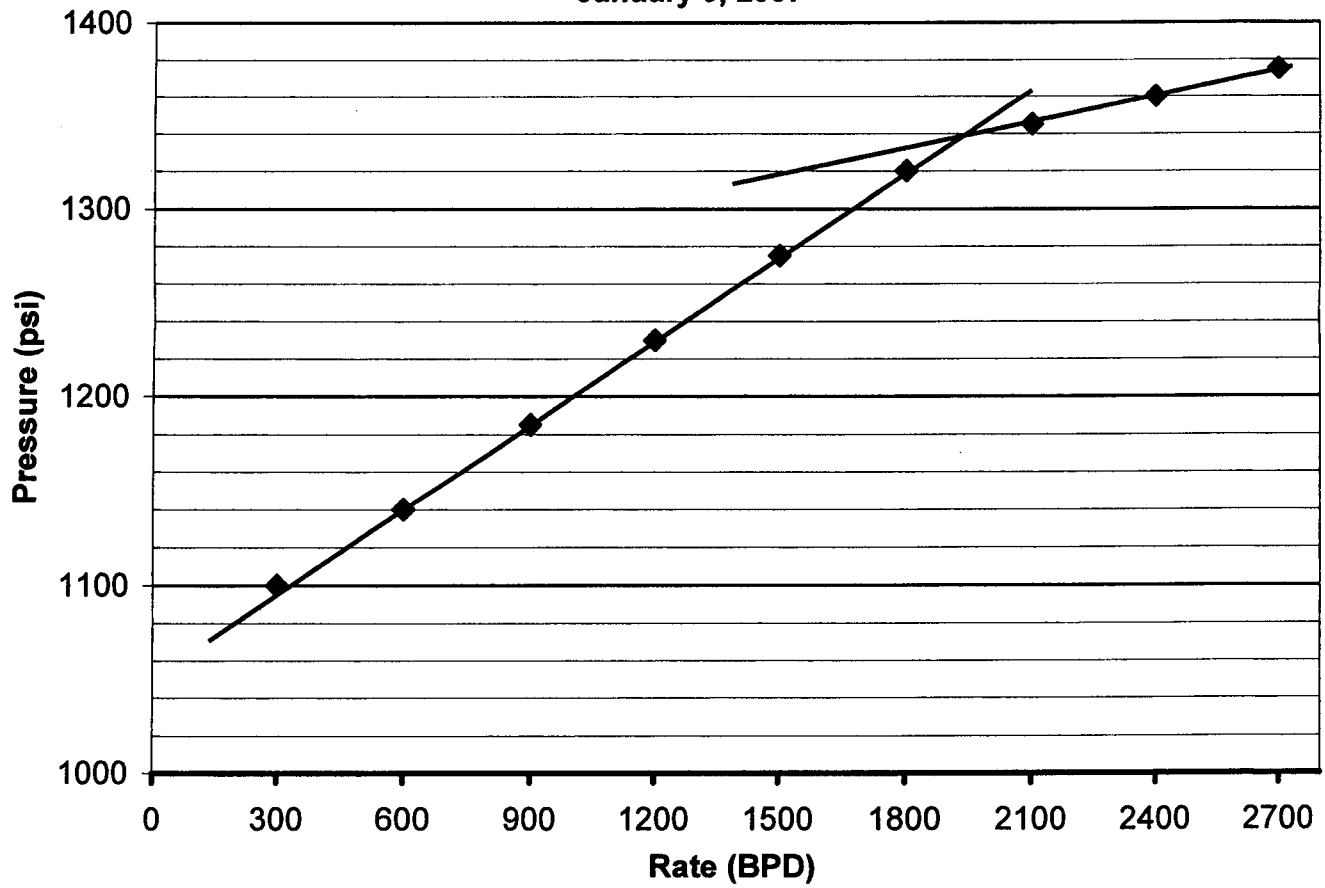
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious and fraudulent statements or representations as to any matter within its jurisdiction

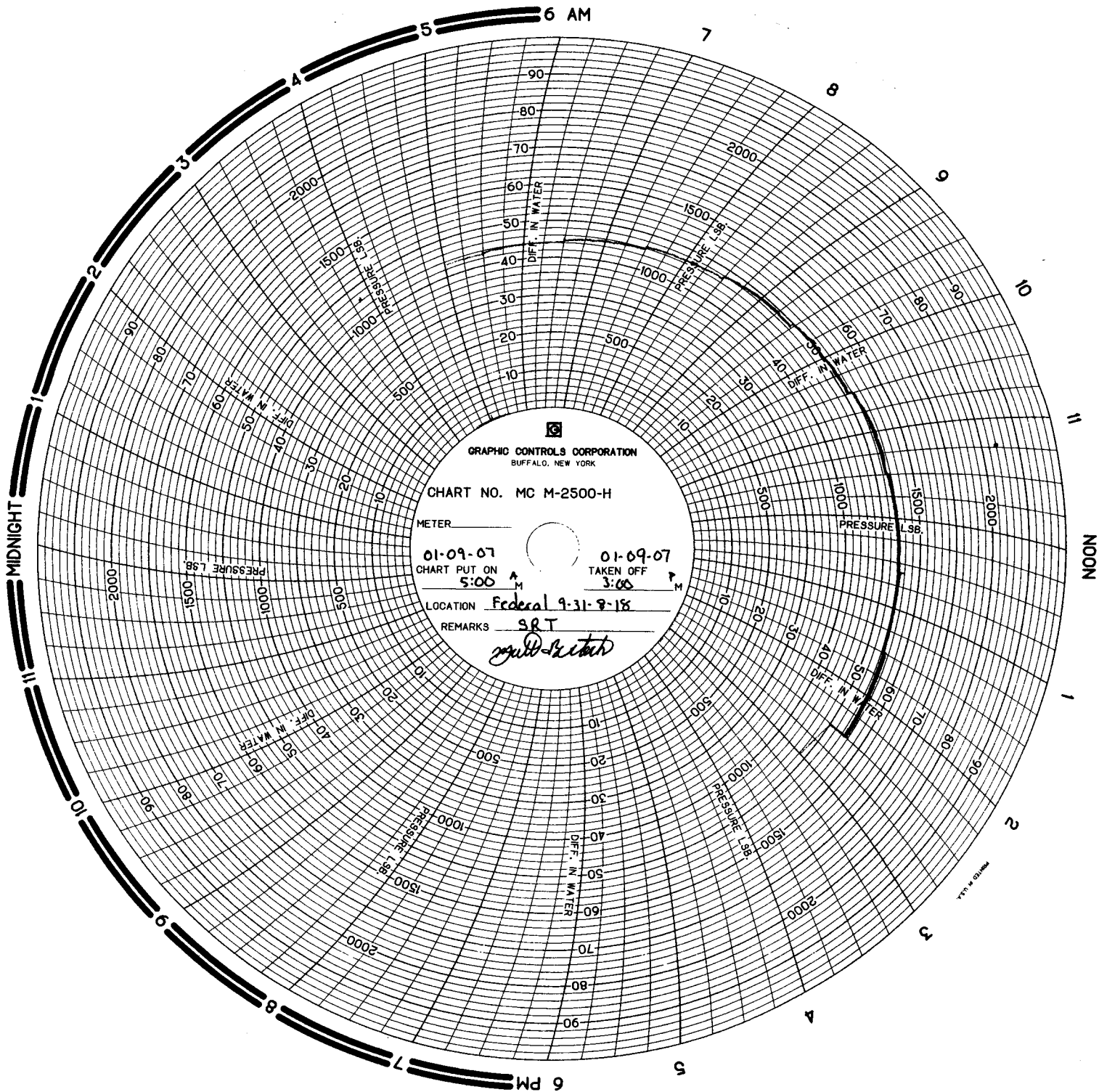
(Instructions on reverse)

Federal 9-31-8-18  
Sundance Unit  
Step Rate Test  
January 9, 2007



Start Pressure: 1075 psi  
Instantaneous Shut In Pressure (ISIP): 1250 psi  
Top Perforation: 4417 feet  
Fracture pressure (Pfp): 1340 psi  
FG: 0.722 psi/ft

Step	Rate(bpd)	Pressure(psi)
1	300	1100
2	600	1140
3	900	1185
4	1200	1230
5	1500	1275
6	1800	1320
7	2100	1345
8	2400	1360
9	2700	1375



<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>			
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU-74404			
<b>1. TYPE OF WELL</b> Water Injection Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>			
<b>2. NAME OF OPERATOR:</b> NEWFIELD PRODUCTION COMPANY		<b>7. UNIT or CA AGREEMENT NAME:</b> GMBU (GRRV)			
<b>3. ADDRESS OF OPERATOR:</b> Rt 3 Box 3630 , Myton, UT, 84052		<b>8. WELL NAME and NUMBER:</b> FEDERAL 9-31-8-18			
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 2142 FSL 0744 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESE Section: 31 Township: 08.0S Range: 18.0E Meridian: S		<b>9. API NUMBER:</b> 43047349310000			
<b>9. FIELD and POOL or WILDCAT:</b> 8 MILE FLAT NORTH		<b>COUNTY:</b> UINTAH			
<b>STATE:</b> UTAH					
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>					
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>				
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:  <input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 7/26/2011  <input type="checkbox"/> SPUD REPORT Date of Spud:  <input type="checkbox"/> DRILLING REPORT Report Date:	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input checked="" type="checkbox"/> OTHER         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <span style="border: 1px solid black; padding: 2px;">5 YR MIT</span> </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input checked="" type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <span style="border: 1px solid black; padding: 2px;">5 YR MIT</span>
<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input checked="" type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <span style="border: 1px solid black; padding: 2px;">5 YR MIT</span>			
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b>  On 07/05/2011 Nathan Wiser with the EPA was contacted concerning the 5 year MIT on the above listed well. On 07/26/2011 the casing was pressured up to 1400 psig and charted for 30 minutes with no pressure loss. The well was not injecting during the test. The tubing pressure was 1150 psig during the test. There was not an EPA representative available to witness the test. <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             EPA# UT21024-06977           </div> <div style="text-align: center;"> <b>Accepted by the Utah Division of Oil, Gas and Mining</b>  <b>FOR RECORD ONLY</b> </div> </div>					
<b>NAME (PLEASE PRINT)</b> Lucy Chavez-Naupoto	<b>PHONE NUMBER</b> 435 646-4874	<b>TITLE</b> Water Services Technician			
<b>SIGNATURE</b> N/A	<b>DATE</b> 8/1/2011				

# Mechanical Integrity Test

## Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency  
Underground Injection Control Program  
999 18<sup>th</sup> Street, Suite 500 Denver, CO 80202-2466

EPA Witness: \_\_\_\_\_

Date: 7/26/11Test conducted by: Lynn Monson

Others present: \_\_\_\_\_

Well Name: <u>Federal 9-31-8-18</u>	Type: ER SWD	Status: AC TA UC
Field: <u>Monument Butte</u>		
Location: <u>NE/SE</u> Sec: <u>31</u> T: <u>8</u> N/S: <u>R</u> <u>18</u> E/W County: <u>Uintah</u> State: <u>UT</u>		
Operator: <u>New Field</u>		
Last MIT: <u>/</u> <u>/</u>	Maximum Allowable Pressure: _____	PSIG

Is this a regularly scheduled test? ☒ Yes ☐ No  
 Initial test for permit? ☐ Yes ☒ No  
 Test after well rework? ☐ Yes ☒ No  
 Well injecting during test? ☐ Yes ☒ No If Yes, rate: \_\_\_\_\_ bpd

Pre-test casing/tubing annulus pressure: 0 psig

MIT DATA TABLE	Test #1	Test #2	Test #3
<b>TUBING</b>	<b>PRESSURE</b>		
Initial Pressure	<u>1150</u> psig	psig	psig
End of test pressure	<u>1150</u> psig	psig	psig
<b>CASING / TUBING</b>	<b>ANNULUS PRESSURE</b>		
0 minutes	<u>1400</u> psig	psig	psig
5 minutes	<u>1400</u> psig	psig	psig
10 minutes	<u>1400</u> psig	psig	psig
15 minutes	<u>1400</u> psig	psig	psig
20 minutes	<u>1400</u> psig	psig	psig
25 minutes	<u>1400</u> psig	psig	psig
30 minutes	<u>1400</u> psig	psig	psig
_____ minutes	psig	psig	psig
_____ minutes	psig	psig	psig
<b>RESULT</b>	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

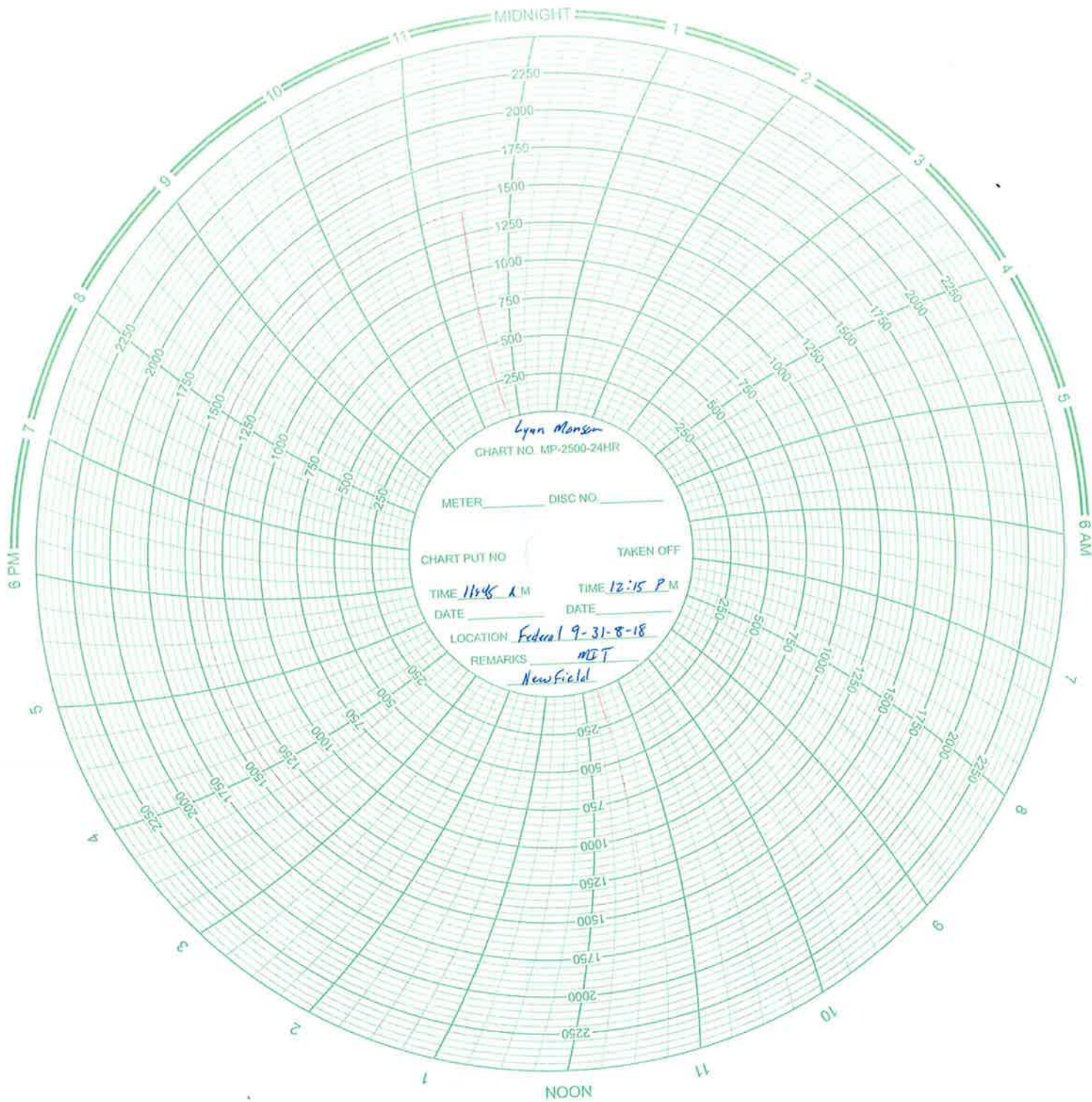
Does the annulus pressure build back up after the test? ☐ Yes ☒ No

## MECHANICAL INTEGRITY PRESSURE TEST

Additional comments for mechanical integrity pressure test, such as volume of fluid added to annulus and bled back at end of test, reason for failing test (casing head leak, tubing leak, other), etc.:

Signature of Witness: \_\_\_\_\_

**RECEIVED** Aug. 01, 2011



## NEWFIELD



## Schematic

43-047-34931

Well Name: Federal 9-31-8-18

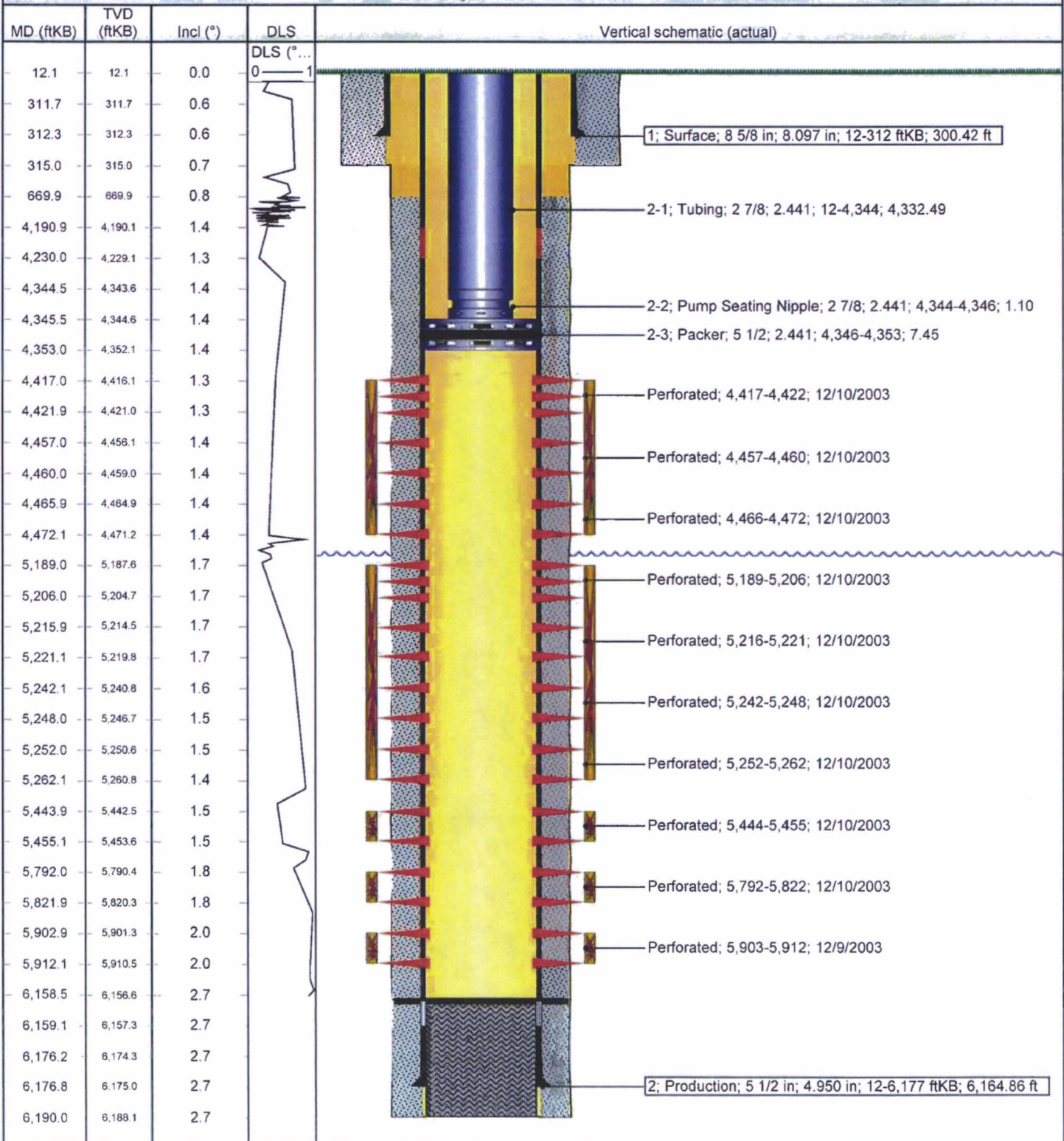
Surface Legal Location		API/UWI		Well RC	Lease	State/Province	Field Name	County
31-8S-18E		43047349310000		500150769		Utah	GMBU CTB9	Uintah
Spud Date	Rig Release Date	On Production Date	Original KB Elevation (ft)	Ground Elevation (ft)	Total Depth All (TVD) (ftKB)		PBTD (All) (ftKB)	
11/21/2003	11/29/2003	12/16/2003	4,990	4,978			Original Hole - 6,158.6	

## Most Recent Job

Job Category	Primary Job Type	Secondary Job Type	Job Start Date	Job End Date
Production / Workover	GYRO Survey	Survey	1/19/2013	1/19/2013

TD: 6,190.0

Vertical - Original Hole, 9/15/2015 10:50:33 AM



# NEWFIELD



## Newfield Wellbore Diagram Data Federal 9-31-8-18

Surface Legal Location 31-8S-18E		API/UWI 43047349310000		Lease	
County Uintah		State/Province Utah		Field Name GMBU CTB9	
Well Start Date 11/20/2003		Spud Date 11/21/2003		Final Rig Release Date 11/29/2003	
				On Production Date 12/16/2003	
Original KB Elevation (ft) 4,990	Ground Elevation (ft) 4,978	Total Depth (ftKB) 6,190.0		Total Depth All (TVD) (ftKB) PBTD (All) (ftKB) Original Hole - 6,158.6	

### Casing Strings

Csg Des	Run Date	OD (in)	ID (in)	Wt/Len (lb/ft)	Grade	Set Depth (ftKB)
Surface	11/21/2003	8 5/8	8.097	24.00	J-55	312
Production	11/28/2003	5 1/2	4.950	15.50	J-55	6,177

### Cement

#### String: Surface, 312ftKB 11/21/2003

Cementing Company BJ Services Company	Top Depth (ftKB) 12.0	Bottom Depth (ftKB) 315.0	Full Return?	Vol Cement Ret (bbl)
Fluid Description 2% CaCL2 + 1/4#/sk Cello-Flake	Fluid Type Lead	Amount (sacks) 150	Class G	Estimated Top (ftKB) 12.0

#### String: Production, 6,177ftKB 11/29/2003

Cementing Company BJ Services Company	Top Depth (ftKB) 670.0	Bottom Depth (ftKB) 6,190.0	Full Return?	Vol Cement Ret (bbl)
Fluid Description 10% gel + 3% KCL, 5#s /sk CSE + 2# sk/kolseal + 1/2#s/sk Cello Flake	Fluid Type Lead	Amount (sacks) 320	Class Premilite II	Estimated Top (ftKB) 670.0
Fluid Description 2% Gel + 3% KCL, .5%EC1, 1/2# sk C.F. 2% gel. 3% SM	Fluid Type Tail	Amount (sacks) 400	Class 50/50 POZ	Estimated Top (ftKB) 3,430.0

### Tubing Strings

Tubing Description					Run Date		Set Depth (ftKB)	
Tubing					8/7/2006		4,353.0	
Item Des	Jts	OD (in)	ID (in)	Wt (lb/ft)	Grade	Len (ft)	Top (ftKB)	Btm (ftKB)
Tubing	13	2 7/8	2.441	6.50	J-55	4,332.49	12.0	4,344.5
Pump Seating Nipple		2 7/8	2.441			1.10	4,344.5	4,345.6
Packer		5 1/2	2.441			7.45	4,345.6	4,353.0

### Rod Strings

Rod Description		Run Date			Set Depth (ftKB)		
Item Des	Jts	OD (in)	Wt (lb/ft)	Grade	Len (ft)	Top (ftKB)	Btm (ftKB)

### Perforation Intervals

Stage#	Zone	Top (ftKB)	Btm (ftKB)	Shot Dens (shots/ft)	Phasing (")	Norm Hole Dia (in)	Date
5	GB4, Original Hole	4,417	4,422	4			12/10/2003
5	GB6, Original Hole	4,457	4,460	4			12/10/2003
5	GB6, Original Hole	4,466	4,472	4			12/10/2003
4	B1, Original Hole	5,189	5,206	2			12/10/2003
4	B2, Original Hole	5,216	5,221	2			12/10/2003
4	A .5, Original Hole	5,242	5,248	2			12/10/2003
4	A .5, Original Hole	5,252	5,262	2			12/10/2003
3	LODC, Original Hole	5,444	5,455	4			12/10/2003
2	CP1, Original Hole	5,792	5,822	2			12/10/2003
1	CP3, Original Hole	5,903	5,912	4			12/9/2003

### Stimulations & Treatments

Stage#	ISIP (psi)	Frac Gradient (psi/ft)	Max Rate (bbl/min)	Max PSI (psi)	Total Clean Vol (bbl)	Total Slurry Vol (bbl)	Vol Recov (bbl)
1	1,750	0.73	24.5	3,504			
2	1,750	0.74	24.7	4,100			
3	2,703	0.93	24.5	4,150			
4	1,570	0.73	25.0	3,505			
5	2,300	0.95	24.5	4,054			

### Proppant

Stage#	Total Prop Vol Pumped (lb)	Total Add Amount
1		Proppant Sand 29872 lb
2		Proppant Sand 100090 lb
3		Proppant Sand 64383 lb
4		Proppant Sand 139662 lb
5		Proppant Sand 40565 lb

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU-74404
<b>1. TYPE OF WELL</b> Water Injection Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> NEWFIELD PRODUCTION COMPANY		<b>7. UNIT or CA AGREEMENT NAME:</b> GMBU (GRRV)
<b>3. ADDRESS OF OPERATOR:</b> Rt 3 Box 3630, Myton, UT, 84052		<b>8. WELL NAME and NUMBER:</b> FEDERAL 9-31-8-18
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2142 FSL 0744 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NESE Section: 31 Township: 08.0S Range: 18.0E Meridian: S		<b>9. API NUMBER:</b> 43047349310000
<b>9. FIELD and POOL or WILDCAT:</b> 8 MILE FLAT NORTH		<b>COUNTY:</b> UINTAH
<b>STATE:</b> UTAH		

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION	<input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: <b>6/22/2016</b>  <input type="checkbox"/> SPUD REPORT Date of Spud:  <input type="checkbox"/> DRILLING REPORT Report Date:
		<input checked="" type="checkbox"/> OTHER	OTHER: <span style="border: 1px solid black; padding: 2px;">5 YR MIT</span>	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
 5 YR MIT performed on the above listed well. On 06/22/2016 the casing was pressured up to 1026 psig and charted for 30 minutes with no pressure loss. The well was injecting during the test. The tbg pressure was 1302 psig during the test. There was not an EPA representative available to witness the test. EPA #UT22197-06977

**Accepted by the  
Utah Division of  
Oil, Gas and Mining**  
  
**Date:** June 27, 2016  
**By:**

<b>NAME (PLEASE PRINT)</b> Lucy Chavez-Naupoto	<b>PHONE NUMBER</b> 435 646-4874	<b>TITLE</b> Water Services Technician
<b>SIGNATURE</b> N/A	<b>DATE</b> 6/23/2016	

# Mechanical Integrity Test

## Casing or Annulus Pressure Mechanical Integrity Test

U.S. Environmental Protection Agency  
Underground Injection Control Program  
999 18<sup>th</sup> Street, Suite 500 Denver, CO 80202-2466

EPA Witness: \_\_\_\_\_ Date: 6/22/16  
Test conducted by: Michael Jensen  
Others present: \_\_\_\_\_

Well Name: <u>Federal 9-31-8-18</u>	Type: ER SWD	Status: AC TA UC
Field: <u>Greater Monument Butte</u>		
Location: <u>NE/SE</u> Sec: <u>31</u> T <u>8</u> N <u>18</u> E/W County: <u>Uintah</u> State: <u>Ut</u>		
Operator: <u>Newfield</u>		
Last MIT: <u>1</u> / <u>1</u>	Maximum Allowable Pressure: <u>1363</u>	PSIG

Is this a regularly scheduled test? ☒ Yes ☐ No  
Initial test for permit? ☐ Yes ☒ No  
Test after well rework? ☐ Yes ☒ No  
Well injecting during test? ☒ Yes ☐ No If Yes, rate: 12 bpd

Pre-test casing/tubing annulus pressure: 0 / 1301 psig

MIT DATA TABLE		Test #1	Test #2	Test #3
<b>TUBING</b>		<b>PRESSURE</b>		
Initial Pressure	<u>1300</u> psig		psig	psig
End of test pressure	<u>1302</u> psig		psig	psig
<b>CASING/TUBING</b>		<b>ANNULUS PRESSURE</b>		
0 minutes	<u>1027.8</u> psig		psig	psig
5 minutes	<u>1027.0</u> psig		psig	psig
10 minutes	<u>1027.0</u> psig		psig	psig
15 minutes	<u>1026.4</u> psig		psig	psig
20 minutes	<u>1026.6</u> psig		psig	psig
25 minutes	<u>1026.2</u> psig		psig	psig
30 minutes	<u>1025.8</u> psig		psig	psig
_____ minutes	psig		psig	psig
_____ minutes	psig		psig	psig
<b>RESULT</b>	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Does the annulus pressure build back up after the test? ☐ Yes ☐ No

## MECHANICAL INTEGRITY PRESSURE TEST

Additional comments for mechanical integrity pressure test, such as volume of fluid added to annulus and bled back at end of test, reason for failing test (casing head leak, tubing leak, other), etc.:

Signature of Witness: \_\_\_\_\_

Federal 9-31-8-18 5 Year MIT(6-22-16)

6/22/2016 1:31:48 PM

